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THE

CAMBIST'S COMPENDIUM,

ETC. ETC.

LONDON:
J. MOYES, TOOK'S COURT, CHANCERY LANE.

/ H. 828.

THE

CAMBIST'S COMPENDIUM;

OR,

TWO FAMILIAR PRACTICAL TREATISES

ON

BILLS OF EXCHANGE:

SHEWING THEIR VARIOUS FORMS, NATURE, AND OPERATIONS; THE PROPERTIES AND BEARINGS OF THE CONSTITUENT PARTS; AND THE DUTIES AND LIABILITIES OF THE SEVERAL PARTIES THERETO, AS DRAWER, PAYEE OR ORDER, DRAWEE AND ACCEPTOR, INDORSER AND HOLDER; ACCORDING TO THE DECISIONS OF THE COURTS OF LAW:

ON

CALCULATIONS OF FOREIGN EXCHANGES,

DIRECT, INDIRECT, PROPORTIONAL, AND ARBITRATED:

AND ON

OPERATIONS IN COIN AND BULLION:

WORKED ACCORDING TO VULGAR AND DECIMAL ARITHMETIC, BY THE CHAIN RULE OR RULE OF EQUATION, AND BY LOGARITHMS:

To which are added,

TABLES OF THE NAMES, ASSAY OR FINENESS, WEIGHT AND STERLING VALUE, OF FOREIGN COINS; OF LOGARITHMS ADAPTED TO EXCHANGE CALCULATIONS; AND OTHER INTERESTING MATTER.

By JOHN HENRY FREESE, Merchant.

LONDON:

PRINTED FOR

LONGMAN, REES, ORME, BROWN, AND GREEN,

PATERNOSTER ROW.

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PREFACE.

In offering to public notice a Work upon subjects which have already been treated of by Writers of no mean abilities, I feel it incumbent upon me to state the reasons by which I have been induced to add to the existing stock; sensible that a multiplication of books frequently tends to impede, rather than to promote, the progress of knowledge.

I had heard it often remarked, by persons no less eminent for their talents than for the high station they occupied in the mercantile world, that the books extant upon commerce generally, and upon bills of exchange and operations in exchanges in particular, were but little calculated to impart instruction to young men in the outset

of their commercial career; that they were generally prolix, replete with technicalities, and evidently written by persons who, however great their abilities, had no practical experience in the matters they had undertaken to discuss, and who, presupposing in their readers a degree of knowledge rarely possessed at an early age, left many terms and points unexplained, whereby the labour of the student was much augmented, he being obliged to collect from other sources that information in which their Works were deficient.

My own experience of this difficulty when I first entered a counting-house, and what I have since observed in young men who have at different periods been in my employ, fully confirms the justice of such remarks.

It appeared to me, therefore, that a Work to which such objections could not apply, would be useful; and as I did not find that any such had issued from the press, I ventured to supply it:*—

* Dubost's Elements of Commerce, in 2 vols. 8vo, published some years ago, contains much useful information, and I have

whether successfully or not, I must leave for others to determine; but having put my manuscript into the hands of youths previously unacquainted with the subjects, and found that, with moderate application, a short time sufficed to impart to them what this Work professes to teach, I may, perhaps, be permitted to hope that my labours have not been altogether in vain.

The time and attention which I have bestowed upon this Work, and the pains I have taken to collect, from the most authentic sources, the various data upon which I have founded my tables and calculations, will, I trust, have enabled me to furnish a valuable book of reference to the commercial world generally, and to youths destined for the important and honourable pursuits

derived assistance from it; but it is not free from many of the objections I have enumerated. An experienced and intelligent Writer upon commercial subjects, Mr. Tate, has lately announced his intention of publishing another Work on Foreign Exchanges; and from the specimen I have seen, I am persuaded it will be creditable to his talents and useful to the mercantile public: but I am equally certain, that neither his Work nor mine will supersede the necessity of each other.

of commerce,—a GRADUS, by which, with moderate attention, they may, with comparative ease, acquire that information which has generally been supposed to be attainable only by great application, united to considerable talent.

The Works of those able lawyers, Mr. Justice Bayley and Mr. Chitty, have been my authorities for what I have stated to be the law upon bills of exchange; and to their elaborate treatises I must refer my readers for detailed information upon any point of law,—it having been my purpose to give the substance, as briefly as a regard to perspicuity would admit of, and in language so free from technicalities that it might be intelligible to the meanest capacity.

The Tables and various data in the second part of the Work, as the monies of account in different countries—their relative values—the modes of exchange between one country and another—the usances and days of grace—have been furnished partly by my own experience, and, where this has proved insufficient, by my commercial friends in this country and abroad:

the statements of the weight, fineness, and sterling value of the principal coins, have been taken from Nelkenbrecher, Ede, and other sources equally authentic; and the logarithmal Tables have been collated with those of Reishammer, Gardiner, Callet, Bonhote, Dubost, and others.

It has been my object, throughout the Work, to lead the student gradually forward, explaining and illustrating every subject as I proceeded, supposing him as without previous information on the several matters discussed; and therefore, I hope, leaving no point unexplained.

The contents of the Work are explained in the Title-page and in the Table of Contents; to enter here into any enlarged comment upon them, would be to repeat much of what has been written in the body of the Work, and to that, therefore, I refer.

To literary merit my Work can have no pretensions: I am sensible that, in this respect at least, if in no other, it must be replete with faults; but if, from being the production of a

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TABLES

OF

LOGARITHMS,

ETC. ETC.

Nos. 1 to $141\frac{0}{20}$ — TABLES OF LOGARITHMS. — Logarithms 0·02119 to 1·17464

Fract.	1	2	3	4	5	6	7
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	0·00000	0·30103	0·47712	0·60206	0·69897	0·77815	0·84510
$\frac{1}{20}$	2119	·31175	·48430	·60746	·70329	·78176	·84819
$\frac{2}{20}$	4139	·32222	·49136	·61278	·70757	·78533	·85126
$\frac{3}{20}$	6070	·33244	·49831	·61805	·71181	·78888	·85431
$\frac{4}{20}$	7918	·34242	·50515	·62325	·71600	·79239	·85733
$\frac{5}{20}$	9691	·35218	·51188	·62839	·72016	·79588	·86034
$\frac{6}{20}$	·11394	·36173	·51851	·63347	·72428	·79934	·86332
$\frac{7}{20}$	·13033	·37107	·52504	·63849	·72835	·80277	·86629
$\frac{8}{20}$	·14613	·38021	·53148	·64345	·73239	·80618	·86923
$\frac{9}{20}$	·16137	·38917	·53782	·64836	·73640	·80956	·87216
$\frac{10}{20}$	·17609	·39794	·54407	·65321	·74036	·81291	·87506
$\frac{11}{20}$	·19033	·40654	·55023	·65801	·74429	·81624	·87795
$\frac{12}{20}$	·20412	·41497	·55630	·66276	·74819	·81954	·88081
$\frac{13}{20}$	·21748	·42325	·56229	·66745	·75205	·82282	·88366
$\frac{14}{20}$	·23045	·43136	·56820	·67210	·75587	·82607	·88649
$\frac{15}{20}$	·24304	·43933	·57403	·67669	·75967	·82930	·88930
$\frac{16}{20}$	·25527	·44716	·57978	·68124	·76343	·83251	·89209
$\frac{17}{20}$	·26717	·45484	·58546	·68574	·76716	·83569	·89487
$\frac{18}{20}$	·27875	·46240	·59106	·69020	·77085	·83885	·89763
$\frac{19}{20}$	·29003	·46982	·59660	·69461	·77452	·84198	·90037

Fract.	8	9	10	11	12	13	14
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	0·90309	0·95424	1·00000	1·04139	1·07918	1·11394	1·14613
$\frac{1}{20}$	580	665	217	336	·08099	561	768
$\frac{2}{20}$	849	904	432	532	279	727	922
$\frac{3}{20}$	·91110	·96142	647	727	458	893	·15076
$\frac{4}{20}$	381	379	860	922	636	·12057	229
$\frac{5}{20}$	645	614	·01072	·05115	814	222	381
$\frac{6}{20}$	908	848	284	308	991	385	534
$\frac{7}{20}$	·92169	·97081	494	500	·09167	548	685
$\frac{8}{20}$	428	313	703	690	342	710	836
$\frac{9}{20}$	686	543	912	881	517	872	987
$\frac{10}{20}$	942	772	·02119	·06070	691	·13033	·16137
$\frac{11}{20}$	·93197	·98000	325	258	864	194	286
$\frac{12}{20}$	450	227	531	446	·10037	354	435
$\frac{13}{20}$	702	453	735	633	209	513	584
$\frac{14}{20}$	952	677	938	819	380	672	732
$\frac{15}{20}$	·94201	900	·03141	·07004	551	830	879
$\frac{16}{20}$	448	·99123	342	188	721	988	·17026
$\frac{17}{20}$	694	344	543	372	890	·14145	173
$\frac{18}{20}$	939	564	743	555	·11059	301	319
$\frac{19}{20}$	·95182	782	941	737	227	457	464

Nos. 15 to $28\frac{19}{20}$ } TABLES OF LOGARITHMS. { LOGARITHMS 1·17609 to 1·46165

Fract.	15	16	17	18	19	20	21
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·17609	1·20412	1·23045	1·25527	1·27875	1·30103	1·32222
$\frac{1}{20}$	754	548	172	648	990	211	325
$\frac{2}{20}$	898	683	300	768	·28103	320	428
$\frac{3}{20}$	·18041	817	426	888	217	428	531
$\frac{4}{20}$	184	952	553	·26007	330	535	634
$\frac{5}{20}$	327	·21085	679	126	443	643	736
$\frac{6}{20}$	469	219	805	245	556	750	838
$\frac{7}{20}$	611	352	930	364	668	856	940
$\frac{8}{20}$	752	484	·24055	482	780	963	·33041
$\frac{9}{20}$	893	617	180	600	892	·31069	143
$\frac{10}{20}$	·19033	748	304	717	·29003	175	244
$\frac{11}{20}$	173	880	428	834	115	281	345
$\frac{12}{20}$	312	·22011	551	951	226	387	445
$\frac{13}{20}$	451	141	674	·27068	336	492	546
$\frac{14}{20}$	590	272	797	184	447	597	646
$\frac{15}{20}$	728	401	920	300	557	702	746
$\frac{16}{20}$	866	531	·25042	416	667	806	846
$\frac{17}{20}$	·20003	660	164	531	776	911	945
$\frac{18}{20}$	140	789	285	646	885	·32015	·34044
$\frac{19}{20}$	276	917	406	761	994	118	143

	22	23	24	25	26	27	28
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·34242	1·36173	1·38021	1·39794	1·41497	1·43136	1·44716
$\frac{1}{20}$	341	267	112	881	581	217	793
$\frac{2}{20}$	439	361	202	967	664	297	871
$\frac{3}{20}$	537	455	292	·40054	747	377	948
$\frac{4}{20}$	635	549	382	140	830	457	·45025
$\frac{5}{20}$	733	642	471	226	913	537	102
$\frac{6}{20}$	830	736	561	312	996	616	179
$\frac{7}{20}$	928	829	650	398	·42078	696	255
$\frac{8}{20}$	·35025	922	739	483	160	775	332
$\frac{9}{20}$	122	·37014	828	569	243	854	408
$\frac{10}{20}$	218	107	917	654	325	933	484
$\frac{11}{20}$	315	199	·39005	739	406	·44012	561
$\frac{12}{20}$	411	291	094	824	488	091	637
$\frac{13}{20}$	507	383	182	909	570	170	712
$\frac{14}{20}$	603	475	270	993	651	248	788
$\frac{15}{20}$	698	566	358	·41078	732	326	864
$\frac{16}{20}$	793	658	445	162	813	404	939
$\frac{17}{20}$	889	749	533	246	894	483	·46015
$\frac{18}{20}$	984	840	620	330	975	560	090
$\frac{19}{20}$	·36078	931	707	414	·43056	638	165

Nos. $\frac{1}{32}$ to $6\frac{31}{32}$ and $6\frac{11}{12}$ TABLES OF LOGARITHMS. Logarithms $-1{\cdot}50515$ negative to $0{\cdot}84315$ positive.

Negative Logarithms. 0	1	2	3	4	5	6
Fractions. Log.	Log.	Log.	Log.	Log.	Log.	Log.
0 —0·00000	0·00000	0·30103	0·47712	0·60206	0·69897	0·77815
$\frac{1}{32}$ —1·50515	·01336	·30776	·48162	·60544	·70168	·78041
$\frac{1}{16}$ or $\frac{2}{32}$ —1·20412	·02663	·31439	·48608	·60879	·70437	·78265
$\frac{3}{32}$ —1·02803	·03892	·32092	·49049	·61212	·70704	·78488
$\frac{1}{8}$ or $\frac{4}{32}$ —0·90309	·05115	·32736	·49485	·61542	·70969	·78711
$\frac{5}{32}$ —0·80618	·06305	·33370	·49917	·61870	·71233	·78932
$\frac{3}{16}$ or $\frac{6}{32}$ —0·72700	·07463	·33995	·50345	·62195	·71496	·79152
$\frac{7}{32}$ —0·66005	·08591	·34611	·50769	·62518	·71757	·79370
$\frac{1}{4}$ or $\frac{8}{32}$ —0·60206	·09691	·35218	·51188	·62839	·72016	·79588
$\frac{9}{32}$ —0·55091	·10763	·35817	·51604	·63157	·72274	·79805
$\frac{5}{16}$ or $\frac{10}{32}$ —0·50515	·11810	·36408	·52016	·63473	·72530	·80020
$\frac{11}{32}$ —0·46376	·12832	·36991	·52423	·63786	·72785	·80235
$\frac{3}{8}$ or $\frac{12}{32}$ —0·42597	·13830	·37566	·52827	·64098	·73038	·80448
$\frac{13}{32}$ —0·39121	·14806	·38134	·53228	·64407	·73290	·80660
$\frac{7}{16}$ or $\frac{14}{32}$ —0·35902	·15761	·38694	·53624	·64714	·73540	·80872
$\frac{15}{32}$ —0·32906	·16695	·39248	·54017	·65019	·73789	·81082
$\frac{1}{2}$ or $\frac{16}{32}$ —0·30103	·17609	·39794	·54407	·65321	·74036	·81291
$\frac{17}{32}$ —0·27470	·18505	·40334	·54739	·65622	·74282	·81500
$\frac{9}{16}$ or $\frac{18}{32}$ —0·24988	·19382	·40860	·55175	·65920	·74527	·81707
$\frac{19}{32}$ —0·22640	·20242	·41393	·55555	·66217	·74770	·81913
$\frac{5}{8}$ or $\frac{20}{32}$ —0·20412	·21085	·41913	·55931	·66511	·75012	·82119
$\frac{21}{32}$ —0·18293	·21913	·42427	·56304	·66804	·75253	·82323
$\frac{11}{16}$ or $\frac{22}{32}$ —0·16273	·22724	·42935	·56673	·67094	·75492	·82526
$\frac{23}{32}$ —0·14342	·23521	·43437	·57040	·67388	·75730	·82729
$\frac{3}{4}$ or $\frac{24}{32}$ —0·12494	·24304	·43933	·57403	·67669	·75967	·82930
$\frac{25}{32}$ —0·10721	·25072	·44424	·57764	·67954	·76202	·83131
$\frac{13}{16}$ or $\frac{26}{32}$ —0·09018	·25828	·44909	·58121	·68237	·76436	·83331
$\frac{27}{32}$ —0·07379	·26570	·45389	·58476	·68518	·76669	·83529
$\frac{7}{8}$ or $\frac{28}{32}$ —0·05799	·27300	·45864	·58827	·68797	·76901	·83727
$\frac{29}{32}$ —0·04275	·28018	·46333	·59176	·69075	·77131	·83924
$\frac{15}{16}$ or $\frac{30}{32}$ —0·02803	·28724	·46798	·59522	·69351	·77360	·84120
$\frac{31}{32}$ —0·01379	·29419	·47257	·59865	·69625	·77588	·84315
$\frac{1}{12}$ —1·07908	·03476	·31876	·48902	·61102	·70615	·78414
$\frac{2}{12}$ —0·77815	·06695	·33579	·50060	·61979	·71321	·79005
$\frac{3}{12}$ —0·60206	·09691	·35218	·51188	·62839	·72016	·79588
$\frac{4}{12}$ —0·47712	·12494	·36798	·52288	·63682	·72700	·80163
$\frac{5}{12}$ —0·38021	·15127	·38322	·53360	·64510	·73373	·80731
$\frac{6}{12}$ —0·30103	·17609	·39794	·54407	·65321	·74036	·81291
$\frac{7}{12}$ —0·23408	·19957	·41218	·54429	·66118	·74689	·81845
$\frac{8}{12}$ —0·17609	·22185	·42597	·56427	·66901	·75333	·82391
$\frac{9}{12}$ —0·12494	·24304	·43933	·57403	·67669	·75967	·82931
$\frac{10}{12}$ —0·07918	·26324	·45230	·58358	·68425	·76592	·83463
$\frac{11}{12}$ —0·03779	·28255	·44489	·59292	·69147	·77208	·83990

Nos. 7 to 13 31/32 and 13 11/12 TABLES OF LOGARITHMS. Logarithms 0·84510 to 1·14354

Fract.	7	8	9	10	11	12	13
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	0·84510	0·90309	0·95424	1·00000	1·04139	1·07918	1·11394
1/32	703	478	575	136	262	·08031	499
1/16 or 2/32	896	647	725	271	385	144	603
3/32	·85088	815	874	405	508	256	706
1/8 or 4/32	278	982	·96023	540	630	368	810
5/32	469	·91149	172	673	752	480	913
3/16 or 6/32	658	315	320	807	873	591	·12016
7/32	846	481	467	940	994	703	119
1/4 or 8/32	·86034	645	614	·01072	·05115	814	222
9/32	221	810	761	205	236	924	324
5/16 or 10/32	407	973	907	336	356	·09035	426
11/32	592	·92136	·97052	468	476	145	528
3/8 or 12/32	776	298	197	599	595	255	629
13/32	960	460	342	729	714	364	733
7/16 or 14/32	·87143	621	486	860	833	473	832
15/32	325	782	629	989	952	582	933
1/2 or 16/32	506	942	772	·02119	·06070	691	·13033
17/32	687	·93100	915	248	188	799	134
9/16 or 18/32	867	260	·98057	377	305	908	234
19/32	·88046	418	199	505	422	·10016	334
5/8 or 20/32	224	576	340	633	539	123	434
21/32	402	733	481	760	656	231	533
11/16 or 22/32	579	889	621	888	772	338	432
23/32	755	·94045	761	·03014	888	444	731
3/4 or 24/32	930	201	900	141	·07004	551	830
25/32	·89105	356	·99039	267	119	657	929
13/16 or 26/32	279	510	178	393	234	763	·14027
27/32	452	664	316	518	349	869	125
7/8 or 28/32	625	817	454	643	463	975	223
29/32	797	969	591	768	578	·11080	321
15/16 or 30/32	968	·95122	728	892	691	185	418
31/32	·90139	273	864	·04016	805	290	516
1/12	·85024	·90759	·95825	·00361	·04467	·08219	·11672
2/12	532	·91205	·96221	718	792	517	948
3/12	·86034	646	614	·01073	·05115	814	·12222
4/12	530	·92082	·97004	424	436	·09108	494
5/12	·87021	514	390	773	·05754	481	765
6/12	506	942	772	·02119	·06070	691	·13034
7/12	986	·93366	·98152	462	383	980	301
8/12	·88461	785	528	803	695	·10266	566
9/12	930	·94201	901	·03114	·07004	551	830
10/12	395	613	·99270	476	311	834	·14093
11/12	·89854	·95020	637	809	616	·11115	354

Nos. 14 to 20 31/32 and 20 11/12 } TABLES OF LOGARITHMS. { LOGARITHMS 1·14613 to 1·32157

Fract.	14	15	16	17	18	19	20
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·14613	1·17609	1·20412	1·23045	1·25527	1·27875	1·30103
1/32	710	700	497	125	603	947	171
1/16 or 2/32	806	790	581	204	678	·28018	239
3/32	903	880	666	284	753	089	306
1/8 or 4/32	999	970	750	363	828	160	374
5/32	·15095	·18059	834	442	903	231	441
3/16 or 6/32	191	149	918	521	977	302	508
7/32	286	238	·21002	600	·26052	373	574
1/4 or 8/32	381	327	085	679	126	443	643
9/32	477	416	169	758	201	514	709
5/16 or 10/32	572	505	252	836	275	584	776
11/32	666	593	335	914	349	654	843
7/8 or 12/32	761	682	418	992	423	724	910
13/32	855	770	501	·24071	497	794	976
7/16 or 14/32	949	858	584	148	570	864	·31043
15/32	·16043	946	666	226	644	934	109
1/2 or 16/32	137	·19033	748	304	717	·29004	175
17/32	230	121	831	381	790	073	242
9/16 or 18/32	324	208	913	459	864	142	308
19/32	417	295	994	536	937	212	374
5/8 or 20/32	510	382	·22076	613	·27010	281	439
21/32	602	469	158	690	082	350	505
11/16 or 22/32	695	555	239	767	155	419	571
23/32	787	642	320	843	228	488	636
3/4 or 24/32	879	728	401	920	300	557	702
25/32	971	814	482	996	372	625	767
13/16 or 26/32	·17063	900	563	·25072	445	694	832
27/32	154	986	644	149	517	762	898
7/8 or 28/32	246	·20071	724	225	589	831	963
29/32	337	157	805	300	661	899	·32028
15/16 or 30/32	428	242	885	376	732	967	092
31/32	519	327	965	452	804	·30035	157
1/12	·14871	·17850	·20638	·23257	·25728	·28066	·30284
2/12	·15127	·18089	862	469	928	255	464
3/12	382	327	·21085	679	·26126	443	643
4/12	635	564	308	888	324	631	821
5/12	887	799	529	·24097	521	818	999
6/12	·16137	1·9033	749	304	717	·29004	·31176
7/12	386	266	967	510	912	189	352
8/12	633	498	·22185	716	·27107	373	527
9/12	879	728	402	920	300	557	702
10/12	·17124	957	617	·25123	493	740	876
11/12	367	·20185	832	326	685	922	·32049

Nos. 21 to $27\frac{11}{32}$ and $27\frac{10}{12}$ TABLES OF LOGARITHMS. Logarithms 1·32222 to 1·44667

Fract.	21	22	23	24	25	26	27
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·32222	1·34242	1·36173	1·38021	1·39794	1·41497	1·43136
$\frac{1}{32}$	287	304	232	078	848	550	187
$\frac{1}{16}$ or $\frac{2}{32}$	351	365	291	134	902	602	237
$\frac{3}{32}$	415	427	349	190	957	654	287
$\frac{1}{8}$ or $\frac{4}{32}$	480	488	408	247	·40011	706	337
$\frac{5}{32}$	544	550	467	303	065	758	387
$\frac{3}{16}$ or $\frac{6}{32}$	608	611	525	359	119	809	437
$\frac{7}{32}$	672	672	584	415	172	861	487
$\frac{1}{4}$ or $\frac{8}{32}$	736	733	642	471	226	913	537
$\frac{9}{32}$	800	794	701	527	280	965	586
$\frac{5}{16}$ or $\frac{10}{32}$	863	855	759	583	334	·42016	636
$\frac{11}{32}$	927	916	817	639	387	068	686
$\frac{3}{8}$ or $\frac{12}{32}$	991	976	875	694	441	119	735
$\frac{13}{32}$	·33054	·35037	933	750	494	171	785
$\frac{7}{16}$ or $\frac{14}{32}$	117	097	991	806	547	222	834
$\frac{15}{32}$	181	158	·37049	861	601	273	884
$\frac{1}{2}$ or $\frac{16}{32}$	244	218	107	917	654	325	933
$\frac{17}{32}$	307	279	165	972	707	376	983
$\frac{9}{16}$ or $\frac{18}{32}$	370	339	222	·39027	760	427	·44032
$\frac{19}{32}$	433	399	280	082	813	478	081
$\frac{5}{8}$ or $\frac{20}{32}$	496	459	337	138	866	529	130
$\frac{21}{32}$	558	519	395	193	919	580	179
$\frac{11}{16}$ or $\frac{22}{32}$	621	579	452	248	972	631	228
$\frac{23}{32}$	683	638	509	303	·41025	682	277
$\frac{3}{4}$ or $\frac{24}{32}$	746	698	566	358	078	732	326
$\frac{25}{32}$	808	758	623	412	130	783	375
$\frac{13}{16}$ or $\frac{26}{32}$	871	817	681	467	183	834	424
$\frac{27}{32}$	933	877	737	522	236	884	473
$\frac{7}{8}$ or $\frac{28}{32}$	995	936	794	576	288	935	521
$\frac{29}{32}$	·34057	995	851	631	340	985	570
$\frac{15}{16}$ or $\frac{30}{32}$	119	·36055	908	685	393	·43036	619
$\frac{31}{32}$	181	114	965	740	445	086	667
$\frac{1}{12}$	·32394	·34407	·36330	·38172	·39939	·41636	·43270
$\frac{2}{12}$	565	570	486	322	·40083	775	404
$\frac{3}{12}$	736	733	642	471	226	913	537
$\frac{4}{12}$	906	895	798	620	369	051	669
$\frac{5}{12}$	·33075	·35057	953	769	512	188	802
$\frac{6}{12}$	344	218	·37107	917	654	325	933
$\frac{7}{12}$	412	379	261	·39064	796	461	·44065
$\frac{8}{12}$	579	539	414	211	937	597	196
$\frac{9}{12}$	746	698	566	358	·41078	733	326
$\frac{10}{12}$	912	857	719	504	218	868	457
$\frac{11}{12}$	·34078	·36015	870	649	358	·43002	586

Nos. 28 to 34$\frac{11}{32}$ and 34$\frac{11}{12}$ TABLES OF LOGARITHMS. Logarithms 1·44716 to 1·54368

Fract.	28	29	30	31	32	33	34
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·44716	1·46240	1·47712	1·49136	1·50515	1·51851	1·53148
$\frac{1}{32}$	764	287	757	180	557	893	188
$\frac{1}{16}$ or $\frac{2}{32}$	813	333	803	224	600	934	228
$\frac{3}{32}$	861	380	848	267	642	975	267
$\frac{1}{8}$ or $\frac{4}{32}$	909	427	893	311	684	·52016	307
$\frac{5}{32}$	957	473	938	355	727	·057	347
$\frac{3}{16}$ or $\frac{6}{32}$	·45006	520	983	398	769	097	387
$\frac{7}{32}$	·054	566	·48028	442	811	138	426
$\frac{1}{4}$ or $\frac{8}{32}$	102	613	073	485	853	179	466
$\frac{9}{32}$	150	659	117	528	895	220	506
$\frac{5}{16}$ or $\frac{10}{32}$	198	705	162	572	937	261	545
$\frac{11}{32}$	246	752	207	615	979	301	585
$\frac{3}{8}$ or $\frac{12}{32}$	294	798	252	658	·51021	342	624
$\frac{13}{32}$	341	844	296	702	063	383	664
$\frac{7}{16}$ or $\frac{14}{32}$	389	890	341	745	105	423	703
$\frac{15}{32}$	437	936	385	788	147	464	743
$\frac{1}{2}$ or $\frac{16}{32}$	484	982	430	831	188	504	782
$\frac{17}{32}$	532	·47028	474	874	230	545	821
$\frac{9}{16}$ or $\frac{18}{32}$	580	074	519	917	272	587	861
$\frac{19}{32}$	627	120	563	960	313	626	900
$\frac{5}{8}$ or $\frac{20}{32}$	675	166	608	·50003	355	666	939
$\frac{21}{32}$	722	212	652	046	397	707	978
$\frac{11}{16}$ or $\frac{22}{32}$	769	257	696	089	438	747	·54017
$\frac{23}{32}$	817	303	740	132	480	787	056
$\frac{3}{4}$ or $\frac{24}{32}$	864	349	785	174	521	827	095
$\frac{25}{32}$	911	394	829	217	563	868	135
$\frac{13}{16}$ or $\frac{26}{32}$	958	440	873	360	604	908	174
$\frac{27}{32}$	·46005	485	917	302	645	948	212
$\frac{7}{8}$ or $\frac{28}{32}$	052	531	961	345	687	988	251
$\frac{29}{32}$	099	576	·49005	388	728	·53028	290
$\frac{15}{16}$ or $\frac{30}{32}$	146	622	049	430	769	068	329
$\frac{31}{32}$	193	667	092	473	810	108	368
$\frac{1}{12}$	·44845	·46365	·47833	·49253	·50628	·51961	·53254
$\frac{2}{12}$	974	489	953	369	741	·52070	360
$\frac{3}{12}$	·45102	613	·48073	485	853	179	466
$\frac{4}{12}$	230	736	192	601	965	288	572
$\frac{5}{12}$	357	859	311	716	·51077	396	677
$\frac{6}{12}$	485	982	430	831	188	505	782
$\frac{7}{12}$	611	·47105	549	946	300	613	887
$\frac{8}{12}$	738	227	667	·50060	411	720	991
$\frac{9}{12}$	864	349	785	174	521	828	·54096
$\frac{10}{12}$	990	470	902	288	632	935	200
$\frac{11}{12}$	·46115	591	·49019	402	742	·53041	303

Nos. 35 to $41\frac{31}{32}$ and $41\frac{11}{12}$ TABLES OF LOGARITHMS. Logarithms 1·54407 to 1·62239

Fract.	35	36	37	38	39	40	41
	Log.	Log.	Log.	Log.	Log.	Log.	Log.
0	1·54407	1·55630	1·56820	1·57978	1·59106	1·60206	1·61278
$\frac{1}{32}$	446	668	857	·58014	141	240	311
$\frac{1}{16}$ or $\frac{2}{32}$	484	706	893	050	176	274	345
$\frac{3}{32}$	523	743	930	085	211	308	378
$\frac{1}{8}$ or $\frac{4}{32}$	562	781	967	121	245	342	411
$\frac{5}{32}$	600	818	·57003	157	280	375	444
$\frac{3}{16}$ or $\frac{6}{32}$	639	856	040	192	315	409	477
$\frac{7}{32}$	677	893	076	228	349	443	509
$\frac{1}{4}$ or $\frac{8}{32}$	716	931	113	263	384	477	542
$\frac{9}{32}$	754	968	149	299	419	510	575
$\frac{5}{16}$ or $\frac{10}{32}$	793	·56006	185	334	453	544	608
$\frac{11}{32}$	831	043	222	369	488	578	641
$\frac{3}{8}$ or $\frac{12}{32}$	870	080	258	405	522	611	674
$\frac{13}{32}$	908	118	294	440	557	645	707
$\frac{7}{16}$ or $\frac{14}{32}$	946	155	331	476	591	678	739
$\frac{15}{32}$	985	192	367	511	625	712	772
$\frac{1}{2}$ or $\frac{16}{32}$	·55023	229	403	546	660	746	805
$\frac{17}{32}$	061	266	439	581	694	779	838
$\frac{9}{16}$ or $\frac{18}{32}$	099	304	475	617	728	812	870
$\frac{19}{32}$	137	341	512	652	763	846	903
$\frac{5}{8}$ or $\frac{20}{32}$	175	378	548	687	797	879	935
$\frac{21}{32}$	214	415	584	722	831	913	968
$\frac{11}{16}$ or $\frac{22}{32}$	252	452	620	757	865	946	·62001
$\frac{23}{32}$	290	489	656	792	900	979	033
$\frac{3}{4}$ or $\frac{24}{32}$	328	526	692	827	934	·61013	066
$\frac{25}{32}$	366	563	728	862	968	046	098
$\frac{13}{16}$ or $\frac{26}{32}$	403	600	764	897	·60002	079	131
$\frac{27}{32}$	441	636	799	932	036	113	163
$\frac{7}{8}$ or $\frac{28}{32}$	479	673	835	967	070	146	195
$\frac{29}{32}$	517	710	871	·59002	104	179	228
$\frac{15}{16}$ or $\frac{30}{32}$	555	747	907	037	138	212	260
$\frac{31}{32}$	593	783	943	072	172	245	293
$\frac{1}{12}$	·54510	·55731	·56918	·58074	·59199	·60297	·61367
$\frac{2}{12}$	613	831	·57015	169	292	387	455
$\frac{3}{12}$	716	931	113	263	384	477	543
$\frac{4}{12}$	819	·56031	210	358	476	567	630
$\frac{5}{12}$	921	130	307	452	568	656	718
$\frac{6}{12}$	·55023	229	403	546	660	746	805
$\frac{7}{12}$	125	328	500	640	751	835	892
$\frac{8}{12}$	226	427	596	754	843	924	979
$\frac{9}{12}$	328	526	692	827	934	·61013	·62066
$\frac{10}{12}$	429	624	788	921	·60025	102	152
$\frac{11}{12}$	530	722	883	·59014	116	190	239

Fract.	42	43	44	45	46	47
	Log.	Log.	Log.	Log.	Log.	Log.
0	1·62325	1·63347	1·64345	1·65321	1·66276	1·67210
1/16	390	410	407	382	335	268
1/8 or 2/16	454	473	468	442	394	325
3/16	518	536	530	502	452	383
1/4 or 4/16	583	599	591	562	511	440
5/16	647	661	653	622	570	498
3/8 or 6/16	711	724	714	682	628	555
7/16	775	786	775	741	687	612
1/2 or 8/16	839	849	836	801	745	669
9/16	903	911	897	861	804	726
5/8 or 10/16	966	974	958	920	862	784
11/16	·63030	·64036	·65019	980	920	840
3/4 or 12/16	094	098	079	·66039	978	897
13/16	157	160	140	098	·67036	954
7/8 or 14/16	220	222	200	158	094	·68011
15/16	284	284	261	217	152	068

	48	49	50	51	52	53
0	1·68124	1·69020	1·69897	1·70757	1·71600	1·72428
1/16	181	075	951	810	653	479
1/8 or 2/16	237	130	·70005	863	705	530
3/16	293	185	060	916	757	581
1/4 or 4/16	350	241	114	969	809	632
5/16	406	296	168	·71022	861	683
3/8 or 6/16	462	351	222	075	912	734
7/16	518	406	275	128	964	785
1/2 or 8/16	574	461	329	181	·72016	835
9/16	630	515	383	233	068	886
5/8 or 10/16	686	570	437	286	119	937
11/16	742	625	490	339	171	987
3/4 or 12/16	797	679	544	391	222	·73038
13/16	853	734	597	443	274	088
7/8 or 14/16	909	788	650	496	325	139
15/16	964	843	704	548	376	189

Nos. 54 to $65\frac{15}{16}$ } TABLES OF LOGARITHMS. { Logarithms 1·73239 to 1·81913

Fract.	54	55	56	57	58	59
	Log.	Log.	Log.	Log.	Log.	Log.
0	1·73239	1·74036	1·74819	1·75587	1·76343	1·77085
$\frac{1}{16}$	290	086	867	635	390	131
$\frac{1}{8}$ or $\frac{2}{16}$	340	135	916	683	436	177
$\frac{3}{16}$	390	184	964	730	483	223
$\frac{1}{4}$ or $\frac{4}{16}$	440	233	·75012	778	530	269
$\frac{5}{16}$	490	282	060	825	576	315
$\frac{3}{8}$ or $\frac{6}{16}$	540	331	109	872	623	360
$\frac{7}{16}$	590	380	157	920	669	406
$\frac{1}{2}$ or $\frac{8}{16}$	640	429	205	967	716	452
$\frac{9}{16}$	689	478	253	·76014	762	497
$\frac{5}{8}$ or $\frac{10}{16}$	739	527	301	061	808	543
$\frac{11}{16}$	789	576	349	108	855	588
$\frac{3}{4}$ or $\frac{12}{16}$	838	624	397	155	901	634
$\frac{13}{16}$	888	673	444	202	947	679
$\frac{7}{8}$ or $\frac{14}{16}$	937	722	492	249	993	725
$\frac{15}{16}$	987	770	540	296	·77039	770

	60	61	62	63	64	65
0	1·77815	1·78533	1·79239	1·79934	1·80618	1·81291
$\frac{1}{16}$	860	577	283	977	660	333
$\frac{1}{8}$ or $\frac{2}{16}$	906	622	327	·80020	703	375
$\frac{3}{16}$	951	666	370	063	745	416
$\frac{1}{4}$ or $\frac{4}{16}$	996	711	414	106	787	458
$\frac{5}{16}$	·78041	755	458	149	830	500
$\frac{3}{8}$ or $\frac{6}{16}$	086	799	501	192	872	541
$\frac{7}{16}$	131	843	545	235	914	583
$\frac{1}{2}$ or $\frac{8}{16}$	176	888	588	277	956	624
$\frac{9}{16}$	220	932	631	320	998	666
$\frac{5}{8}$ or $\frac{10}{16}$	265	976	675	363	·81040	707
$\frac{11}{16}$	310	·79020	718	405	082	748
$\frac{3}{4}$ or $\frac{12}{16}$	355	064	761	448	124	790
$\frac{13}{16}$	399	108	805	491	166	831
$\frac{7}{8}$ or $\frac{14}{16}$	444	152	848	533	208	872
$\frac{15}{16}$	488	195	891	576	250	913

Fract.	66	67	68	69	70	71
	Log.	Log.	Log.	Log.	Log.	Log.
0	1·81954	1·82607	1·83251	1·83885	1·84510	1·85126
1/16	996	648	291	924	549	164
1/8 or 2/16	·82037	688	331	964	587	202
3/16	078	729	370	·84003	626	240
1/4 or 4/16	119	769	410	042	665	278
5/16	160	810	450	081	703	317
3/8 or 6/16	200	850	490	120	742	355
7/16	241	890	529	159	780	393
1/2 or 8/16	282	930	569	198	819	431
9/16	323	971	609	238	857	469
5/8 or 10/16	364	·83011	648	277	896	506
11/16	404	051	688	315	934	544
3/4 or 12/16	445	091	727	354	973	582
13/16	486	131	767	393	·85011	620
7/8 or 14/16	526	171	806	432	049	658
15/16	567	211	846	471	088	696

	72	73	74	75	76	77
0	1·85733	1·86332	1·86923	1·87506	1·88081	1·88649
1/16	771	369	960	542	117	684
1/8 or 2/16	809	407	996	578	153	720
3/16	846	444	·87033	615	188	755
1/4 or 4/16	884	481	070	651	224	790
5/16	921	518	106	687	260	825
3/8 or 6/16	959	555	143	723	295	860
7/16	996	592	179	759	331	895
1/2 or 8/16	·86034	629	216	795	366	930
9/16	071	666	252	831	402	965
5/8 or 10/16	109	703	288	867	437	·89000
11/16	146	739	325	902	472	035
3/4 or 12/16	183	776	361	938	508	070
13/16	221	813	397	974	543	105
7/8 or 14/16	258	850	434	·88010	579	140
15/16	295	886	470	046	614	175

Nos. 78 to 89 15/16 } TABLES OF LOGARITHMS. { LOGARITHMS 1·89209 to 1·95394

Fract.	78	79	80	81	82	83
	Log.	Log.	Log.	Log.	Log.	Log.
0	1·89209	1·89763	1·90309	1·90849	1·91381	1·91908
1/16	244	797	343	882	414	941
1/8 or 2/16	279	831	377	915	448	973
3/16	314	866	411	949	481	·92006
1/4 or 4/16	348	900	445	982	514	038
5/16	383	934	478	·91016	547	071
3/8 or 6/16	418	968	512	049	580	104
7/16	452	·90003	546	082	612	136
1/2 or 8/16	487	037	580	116	645	169
9/16	522	071	613	149	678	201
5/8 or 10/16	556	105	647	182	711	234
11/16	591	139	681	216	744	266
3/4 or 12/16	625	173	714	249	777	298
13/16	660	207	748	282	810	331
7/8 or 14/16	694	241	781	315	842	363
15/16	728	275	815	348	875	396

	84	85	86	87	88	89
0	1·92428	1·92942	1·93450	1·93952	1·94448	1·94939
1/16	460	974	481	983	479	969
1/8 or 2/16	493	·93006	513	·94014	510	·95000
3/16	525	038	544	045	541	030
1/4 or 4/16	557	069	576	077	571	061
5/16	589	101	607	108	602	091
3/8 or 6/16	621	133	639	139	633	122
7/16	654	165	670	170	664	152
1/2 or 8/16	686	197	702	201	694	182
9/16	718	228	733	232	725	213
5/8 or 10/16	750	260	764	263	756	243
11/16	782	292	796	294	786	273
3/4 or 12/16	814	323	827	325	817	303
13/16	846	355	858	356	847	334
7/8 or 14/16	878	387	889	387	878	364
15/16	910	418	921	417	908	394

Fract.	90	91	92	93	94	95
	Log.	Log.	Log.	Log.	Log.	Log.
0	1·95424	1·95904	1·96379	1·96848	1·97313	1·97772
1/16	454	934	408	877	342	801
1/8 or 2/16	485	964	438	907	371	829
3/16	515	994	467	936	399	858
1/4 or 4/16	545	·96023	497	965	428	887
5/16	575	053	526	994	457	915
3/8 or 6/16	605	083	555	·97023	486	943
7/16	635	112	585	052	514	972
1/2 or 8/16	665	142	614	081	543	·98000
9/16	695	172	644	110	572	029
5/8 or 10/16	725	201	673	139	601	057
11/16	755	231	702	168	629	086
3/4 or 12/16	785	261	731	197	658	114
13/16	815	290	761	226	687	142
7/8 or 14/16	844	320	790	255	715	171
15/16	874	349	819	284	744	199

	96	97	98	99	100	101
0	1·98227	1·98677	1·99123	1·99564	2·00000	2·00432
1/16	255	705	150	591	027	459
1/8 or 2/16	284	733	178	618	054	486
3/16	312	761	206	646	081	513
1/4 or 4/16	340	789	233	673	108	540
5/16	368	817	261	700	136	566
3/8 or 6/16	396	845	288	728	163	593
7/16	425	873	316	755	190	620
1/2 or 8/16	453	900	344	782	217	647
9/16	481	928	371	810	244	673
5/8 or 10/16	509	956	399	837	271	700
11/16	537	984	426	864	298	727
3/4 or 12/16	565	·99012	454	891	325	753
13/16	593	039	481	918	351	780
7/8 or 14/16	621	067	509	946	378	807
15/16	649	095	536	973	405	833

Fract.	102	103	104	105	106	107
	Log.	Log.	Log.	Log.	Log.	Log.
0	2·00860	2·01284	2·01703	2·02119	2·02531	2·02938
⅛	913	336	756	171	582	989
¼ or ⅛	966	389	808	222	633	·03040
⅜	·01019	442	860	274	684	090
½ or ⅜	072	494	912	325	735	141
⅝	125	546	964	377	786	191
¾ or ⅝	178	599	·02015	428	837	242
⅞	231	651	067	479	888	292
	108	109	110	111	112	113
0	2·03342	2·03743	2·04139	2·04532	2·04922	2·05308
⅛	393	792	189	581	970	356
¼ or ⅛	443	842	238	630	·05019	404
⅜	493	892	287	679	067	452
½ or ⅜	543	941	336	727	115	500
⅝	593	991	385	776	163	547
¾ or ⅝	643	·04040	434	825	212	595
⅞	693	090	483	873	260	643
	114	115	116	117	118	119
0	2·05690	2·06070	2·06446	2·06819	2·07188	2·07555
⅛	738	117	493	865	234	600
¼ or ⅛	786	164	539	911	280	646
⅜	833	211	586	958	326	691
½ or ⅜	881	258	633	·07004	372	737
⅝	928	305	679	050	418	782
¾ or ⅝	975	352	726	096	463	828
⅞	·06023	399	772	142	509	873
	120	121	122	123	124	125
0	2·07918	2·08279	2·08636	2·08991	2·09342	2·09691
⅛	963	323	680	·09035	386	734
¼ or ⅛	·08009	368	725	079	430	778
⅜	054	413	769	123	473	821
½ or ⅜	099	458	814	167	517	864
⅝	144	502	858	211	561	908
¾ or ⅝	189	547	902	255	604	951
⅞	234	591	946	298	648	994

Fract.	126	127	128	129	130	131
	Log.	Log.	Log.	Log.	Log.	Log.
0	2·10037	2·10380	2·10721	2·11059	2·11394	2·11727
⅛	080	423	763	101	436	769
¼ or ²⁄₈	123	466	806	143	478	810
⅜	166	508	848	185	519	851
½ or ⁴⁄₈	209	551	890	227	561	893
⅝	252	594	933	269	603	934
¾ or ⁶⁄₈	295	636	975	311	644	975
⅞	338	679	·11017	353	686	·12016
	132	133	134	135	136	137
0	2·12057	2·12385	2·12710	2·13033	2·13354	2·13672
⅛	099	426	751	074	394	712
¼ or ²⁄₈	140	467	791	114	434	751
⅜	181	507	832	154	473	791
½ or ⁴⁄₈	222	548	872	194	513	830
⅝	263	589	913	234	553	870
¾ or ⁶⁄₈	303	629	953	274	593	909
⅞	344	670	993	314	632	949
	138	139	140	141	142	143
0	2·13988	2·14301	2·14613	2·14922	2·15229	2·15534
⅛	·14027	341	652	960	267	572
¼ or ²⁄₈	067	380	690	999	305	609
⅜	106	418	729	·15037	343	647
½ or ⁴⁄₈	145	457	768	076	381	685
⅝	184	496	806	114	420	723
¾ or ⁶⁄₈	223	535	845	152	458	761
⅞	262	574	883	191	496	799
	144	145	146	147	148	149
0	2·15836	2·16137	2·16435	2·16732	2·17026	2·17319
⅛	874	174	472	769	063	355
¼ or ²⁄₈	912	212	510	806	099	391
⅜	949	249	547	842	136	428
½ or ⁴⁄₈	987	286	584	879	173	464
⅝	·16024	324	621	916	209	500
¾ or ⁶⁄₈	062	361	658	953	246	537
⅞	099	398	695	989	282	573

Fract.	150	151	152	153	154	155
	Log.	Log.	Log.	Log.	Log.	Log.
0	2·17609	2·17898	2·18184	2·18469	2·18752	2·19033
⅛	645	934	220	505	787	068
¼ or ⅛	681	970	256	540	823	103
⅜	718	·18005	291	575	858	138
½ or ⅜	754	041	327	611	893	173
⅝	790	077	363	646	928	208
¾ or ⅝	826	113	398	682	963	243
⅞	862	149	434	717	998	278
	156	157	158	159	160	161
0	2·19312	2·19590	2·19866	2·20140	2·20412	2·20683
⅛	347	625	900	174	446	716
¼ or ⅛	382	659	934	208	480	750
⅜	417	694	969	242	514	784
½ or ⅜	451	728	·20003	276	548	817
⅝	486	763	037	310	581	851
¾ or ⅝	521	797	071	344	615	884
⅞	555	831	106	378	649	918
	162	163	164	165	166	167
0	2·20952	2·21219	2·21484	2·21748	2·22011	2·22272
⅛	985	252	517	781	044	304
¼ or ⅛	·21018	285	551	814	076	337
⅜	052	319	584	847	109	369
½ or ⅜	085	352	617	880	141	401
⅝	119	385	650	913	174	434
¾ or ⅝	152	418	683	945	207	466
⅞	185	451	715	978	239	499
	168	169	170	171	172	173
0	2·22531	2·22789	2·23045	2·23300	2·23553	2·23805
⅛	563	821	077	331	584	836
¼ or ⅛	596	853	109	363	616	867
⅜	628	885	141	395	647	899
½ or ⅜	660	917	172	426	679	930
⅝	692	949	204	458	710	961
¾ or ⅝	724	981	236	490	742	992
⅞	757	·23013	268	521	773	·24024

Fract.	174	175	176	177	178	179
	Log.	Log.	Log.	Log.	Log.	Log.
0	2·24055	2·24304	2·24551	2·24797	2·25042	2·25285
⅛	086	335	582	828	072	316
¼ or ⅛	117	366	613	859	103	346
⅜	148	397	644	889	133	376
½ or ⅜	180	428	674	920	164	406
⅝	211	459	705	950	194	437
¾ or ⅝	242	490	736	981	225	467
⅞	273	520	767	·25011	255	497

	180	181	182	183	184	185
0	2·25527	2·25768	2·26007	2·26245	2·26482	2·26717
⅛	557	798	037	275	511	747
¼ or ⅛	588	828	067	304	541	776
⅜	618	858	097	334	570	805
½ or ⅜	648	888	126	364	600	834
⅝	678	918	156	393	629	864
¾ or ⅝	708	947	186	423	658	893
⅞	738	977	215	452	688	922

	186	187	188	189	190	191
0	2·26951	2·27184	2·27416	2·27646	2·27875	2·28103
⅛	980	213	445	675	904	132
¼ or ⅛	·27010	242	474	704	932	160
⅜	039	271	502	732	961	189
½ or ⅜	068	300	531	761	990	217
⅝	097	329	560	790	·28018	245
¾ or ⅝	126	358	589	818	046	274
⅞	155	387	617	847	075	302

	192	193	194	195	196	197
0	2·28330	2·28556	2·28780	2·29003	2·29226	2·29447
⅛	358	584	808	031	253	474
¼ or ⅛	387	612	836	059	281	502
⅜	415	640	864	087	309	529
½ or ⅜	443	668	892	115	336	557
⅝	471	696	920	142	364	584
¾ or ⅝	499	724	948	170	391	612
⅞	528	752	976	198	419	639

Fract.	198	199	200	201	202	203
	Log.	Log.	Log.	Log.	Log.	Log.
0	2·29667	2·29885	2·30103	2·30320	2·30535	2·30750
⅛	694	913	130	347	562	776
¼ or ⅛	721	940	157	374	589	803
⅜	749	967	184	401	616	830
½ or ⅜	776	994	211	428	643	856
⅝	803	·30021	239	454	669	883
¾ or ⅝	831	049	266	481	696	910
⅞	858	076	293	508	723	936
	204	205	206	207	208	209
0	2·30963	2·31175	2·31387	2·31597	2·31806	2·32015
⅛	990	202	413	623	832	041
¼ or ⅛	·31016	228	439	649	859.	067
⅜	043	255	466	676	885	092
½ or ⅜	069	281	492	702	911	118
⅝	096	308	518	728	937	144
¾ or ⅝	122	334	545	754	963	170
⅞	149	360	571	780	989	196
	210	211	212	213	214	215
0	2·32222	2·32428	2·32634	2·32838	2·33041	2·33244
⅛	248	454	659	863	067	269
¼ or ⅛	274	480	685	889	092	294
⅜	299	505	710	914	117	320
½ or ⅜	325	531	736	940	143	345
⅝	351	557	761	965	168	370
¾ or ⅝	377	582	787	991	193	395
⅞	403	608	812	·33016	219	420
	216	217	218	219	220	221
0	2·33445	2·33646	2·33846	2·34044	2·34242	2·34439
⅛	471	671	871	069	267	464
¼ or ⅛	496	696	895	094	292	488
⅜	521	721	920	119	316	513
½ or ⅜	546	746	945	143	341	537
⅝	571	771	970	168	365	562
¾ or ⅝	596	796	995	193	390	586
⅞	621	821	·34020	218	415	611

No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
222	2·34635	234	2·36922	246	2·39094	258	2·41162	270	2·43136	282	2·45025
	684		968		138		204		177		063
	733		·37014		182		246		217		102
	782		061		226		288		257		140
223	830	235	107	247	270	259	330	271	297	283	179
	879		153		314		372		337		217
	928		199		358		414		377		255
	976		245		401		456		417		294
224	·35025	236	291	248	445	260	497	272	457	284	332
	073		337		489		539		497		370
	122		383		533		581		537		408
	170		429		576		622		576		446
225	218	237	475	249	620	261	664	273	616	285	484
	266		521		664		706		656		523
	315		566		707		747		696		561
	363		612		751		789		735		599
226	411	238	658	250	794	262	830	274	775	286	637
	459		703		837		872		815		675
	507		749		881		913		854		712
	555		794		924		954		894		750
227	603	239	840	251	967	263	996	275	933	287	788
	650		885		·40011		·42037		973		826
	698		931		054		078		·44012		864
	746		976		097		119		052	288	939
228	793	240	·38021	252	140	264	160	276	091		·46015
	841		066		183		202		130	289	090
	889		112		226		243		170		165
	936		157		269		284		209	290	240
229	984	241	202	253	312	265	325	277	248		315
	·36031		247		355		366		287	291	389
	078		292		398		406		326		464
	126		337		441		447		365	292	538
230	173	242	382	254	483	266	488	278	404		613
	220		426		526		529		444	293	687
	267		471		569		570		483		761
	314		516		611		610		521	294	835
231	361	243	561	255	654	267	651	279	560		909
	408		605		697		692		599	295	982
	455		650		739		732		638		·47056
	502		694		782		773		677	296	129
232	549	244	739	256	824	268	813	280	716		202
	596		783		866		854		755	297	276
	642		828		909		894		793		349
	689		872		951		935		832	298	422
233	736	245	917	257	993	269	975	281	871		494
	782		961		·41036		·43016		909	299	567
	829		·39005		078		056		948		640
	875		049		120		096		986	300	712

Nos. 300 to 599 } TABLES OF LOGARITHMS. { LOGARITHMS 2·47712 to 2·77743

300				400				500			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	2·47712	50	2·54407	0	2·60206	50	2·65321	0	2·69897	50	2·74036
1	857	51	531	1	314	51	418	1	984	51	115
2	·48001	52	654	2	423	52	514	2	·70070	52	194
3	144	53	777	3	531	53	610	3	157	53	273
4	287	54	900	4	638	54	706	4	243	54	351
5	430	55	·55023	5	746	55	801	5	329	55	429
6	572	56	145	6	853	56	896	6	415	56	507
7	714	57	267	7	959	57	992	7	501	57	586
8	855	58	388	8	·61066	58	·66087	8	586	58	663
9	996	59	509	9	172	59	181	9	672	59	741
10	·49136	60	630	10	278	60	276	10	757	60	819
11	276	61	751	11	384	61	370	11	842	61	896
12	415	62	871	12	490	62	464	12	927	62	974
13	554	63	991	13	595	63	558	13	·71012	63	·75051
14	693	64	·56110	14	700	64	652	14	096	64	128
15	831	65	229	15	805	65	745	15	181	65	205
16	969	66	348	16	909	66	839	16	265	66	282
17	·50106	67	467	17	·62014	67	932	17	349	67	358
18	243	68	585	18	118	68	·67025	18	433	68	435
19	379	69	703	19	221	69	117	19	517	69	511
20	515	70	820	20	325	70	210	20	600	70	587
21	651	71	937	21	428	71	302	21	684	71	664
22	786	72	·57054	22	531	72	394	22	767	72	740
23	920	73	171	23	634	73	486	23	850	73	815
24	·51055	74	287	24	737	74	578	24	933	74	891
25	188	75	403	25	839	75	669	25	·72016	75	967
26	322	76	519	26	941	76	761	26	099	76	·76042
27	455	77	634	27	·63043	77	852	27	181	77	118
28	587	78	749	28	144	78	943	28	263	78	193
29	720	79	864	29	246	79	·68034	29	346	79	268
30	851	80	978	30	347	80	124	30	428	80	343
31	983	81	·58092	31	448	81	215	31	509	81	418
32	·52114	82	206	32	548	82	305	32	591	82	492
33	244	83	320	33	649	83	395	33	673	83	567
34	375	84	433	34	749	84	485	34	754	84	641
35	504	85	546	35	849	85	574	35	835	85	716
36	634	86	659	36	949	86	664	36	916	86	790
37	763	87	771	37	·64048	87	753	37	997	87	864
38	892	88	883	38	147	88	842	38	·73078	88	938
39	·53020	89	995	39	246	89	931	39	159	89	·77012
40	148	90	·59106	40	345	90	·69020	40	239	90	085
41	275	91	218	41	444	91	108	41	320	91	159
42	403	92	329	42	542	92	197	42	400	92	232
43	529	93	439	43	640	93	285	43	480	93	305
44	656	94	550	44	738	94	373	44	560	94	379
45	782	95	660	45	836	95	461	45	640	95	452
46	908	96	770	46	933	96	548	46	719	96	525
47	·54033	97	879	47	·65031	97	636	47	799	97	597
48	158	98	988	48	128	98	723	48	878	98	670
9	283	99	·60097	49	225	99	810	49	957	99	743

600				700				800			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	2·77815	50	2·81291	0	2·84510	50	2·87506	0	2·90309	50	2·92942
1	887	51	358	1	572	51	564	1	363	51	993
2	960	52	425	2	634	52	622	2	417	52	·93044
3	·78032	53	491	3	696	53	679	3	472	53	095
4	104	54	558	4	757	54	737	4	526	54	146
5	176	55	624	5	819	55	795	5	580	55	197
6	247	56	690	6	880	56	852	6	634	56	247
7	319	57	757	7	942	57	910	7	687	57	298
8	390	58	823	8	·85003	58	967	8	741	58	349
9	462	59	889	9	065	59	·88024	9	795	59	399
10	533	60	954	10	126	60	081	10	849	60	450
11	604	61	·82020	11	187	61	138	11	902	61	500
12	675	62	086	12	248	62	195	12	956	62	551
13	746	63	151	13	309	63	252	13	·91009	63	·601
14	817	64	217	14	370	64	309	14	062	64	651
15	888	65	282	15	431	65	366	15	116	65	702
16	958	66	347	16	491	66	423	16	169	66	752
17	·79029	67	413	17	552	67	480	17	222	67	802
18	099	68	478	18	612	68	536	18	275	68	852
19	169	69	543	19	673	69	593	19	328	69	902
20	239	70	607	20	733	70	649	20	381	70	952
21	309	71	672	21	794	71	705	21	434	71	·94002
22	379	72	737	22	854	72	762	22	487	72	052
23	449	73	802	23	914	73	818	23	540	73	101
24	518	74	866	24	974	74	874	24	593	74	151
25	588	75	930	25	·86034	75	930	25	645	75	201
26	657	76	995	26	094	76	986	26	698	76	250
27	727	77	·83059	27	153	77	·89042	27	751	77	300
28	796	78	123	28	213	78	098	28	803	78	349
29	865	79	187	29	273	79	154	29	855	79	399
30	934	80	251	30	332	80	209	30	908	80	448
31	·80003	81	315	31	392	81	265	31	960	81	498
32	072	82	378	32	451	82	321	32	·92012	82	547
33	140	83	442	33	510	83	376	33	064	83	596
34	209	84	506	34	570	84	432	34	117	84	645
35	277	85	569	35	629	85	487	35	169	85	694
36	346	86	632	36	688	86	542	36	221	86	743
37	414	87	696	37	747	87	597	37	273	87	792
38	482	88	759	38	806	88	653	38	324	88	841
39	550	89	822	39	864	89	708	39	376	89	890
40	618	90	885	40	923	90	763	40	428	90	939
41	686	91	948	41	982	91	818	41	480	91	988
42	754	92	·84011	42	·87040	92	873	42	531	92	·95036
43	821	93	073	43	099	93	927	43	583	93	085
44	889	94	136	44	157	94	982	44	634	94	134
45	956	95	198	45	216	95	·90037	45	686	95	182
46	·81023	96	261	46	274	96	091	46	737	96	231
47	090	97	323	47	332	97	146	47	788	97	279
48	158	98	386	48	390	98	200	48	840	98	328
49	224	99	448	49	448	99	255	49	891	99	376

Nos. 900 to 1199 } TABLES OF LOGARITHMS. { Logarithms 2·95424 to 3·07882

900				1000				1100			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	2·95424	50	·297772	0	3·00000	50	3·02119	0	3·04139	50	3·06070
1	472	51	818	1	043	51	160	1	179	51	108
2	521	52	864	2	087	52	202	2	218	52	145
3	569	53	909	3	130	53	243	3	258	53	183
4	617	54	955	4	173	54	284	4	297	54	221
5	665	55	·98000	5	217	55	325	5	336	55	258
6	713	56	046	6	260	56	366	6	376	56	296
7	761	57	091	7	303	57	408	7	415	57	333
8	809	58	137	8	346	58	449	8	454	58	371
9	856	59	182	9	389	59	490	9	493	59	408
10	904	60	227	10	432	60	531	10	532	60	446
11	952	61	272	11	475	61	572	11	571	61	483
12	999	62	318	12	518	62	612	12	610	62	521
13	·96047	63	363	13	561	63	653	13	650	63	558
14	095	64	408	14	604	64	694	14	689	64	595
15	142	65	453	15	647	65	735	15	727	65	633
16	190	66	498	16	689	66	776	16	766	66	670
17	237	67	543	17	732	67	816	17	805	67	707
18	284	68	588	18	775	68	857	18	844	68	744
19	332	69	632	19	817	69	898	19	883	69	781
20	379	70	677	20	860	70	938	20	922	70	819
21	426	71	722	21	903	71	979	21	961	71	856
22	473	72	767	22	945	72	·03019	22	999	72	893
23	520	73	811	23	988	73	060	23	·05038	73	930
24	567	74	856	24	·01030	74	100	24	077	74	967
25	614	75	900	25	072	75	141	25	115	75	·07004
26	661	76	945	26	115	76	181	26	154	76	041
27	708	77	989	27	157	77	222	27	192	77	078
28	755	78	·99034	28	199	78	262	28	231	78	115
29	802	79	078	29	242	79	302	29	269	79	151
30	848	80	123	30	284	80	342	30	308	80	188
31	895	81	167	31	326	81	383	31	346	81	225
32	942	82	211	32	368	82	423	32	385	82	262
33	988	83	255	33	410	83	463	33	423	83	298
34	·97035	84	300	34	452	84	503	34	461	84	335
35	081	85	344	35	494	85	543	35	500	85	372
36	128	86	388	36	536	86	583	36	538	86	408
37	174	87	432	37	578	87	623	37	576	87	445
38	220	88	476	38	620	88	663	38	614	88	482
39	267	89	520	39	662	89	703	39	652	89	518
40	313	90	564	40	703	90	743	40	690	90	555
41	359	91	607	41	745	91	782	41	729	91	591
42	405	92	651	42	787	92	822	42	767	92	628
43	451	93	695	43	828	93	862	43	805	93	664
44	497	94	739	44	870	94	902	44	843	94	700
45	543	95	782	45	912	95	941	45	881	95	737
46	589	96	826	46	953	96	981	46	918	96	773
47	635	97	870	47	995	97	·04021	47	956	97	809
48	681	98	913	48	·02036	98	060	48	994	98	846
	727	99	957	49	078	99	100	49	·06032	99	882

1200				1300				1400			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·07918	50	3·09691	0	3·11394	50	3·13033	0	3·14613	50	3·16137
1	954	51	726	1	428	51	066	1	644	51	167
2	990	52	760	2	461	52	098	2	675	52	197
3	·08027	53	795	3	494	53	130	3	706	53	227
4	063	54	830	4	528	54	162	4	737	54	256
5	099	55	864	5	561	55	194	5	768	55	286
6	135	56	899	6	594	56	226	6	799	56	316
7	171	57	934	7	628	57	258	7	829	57	346
8	207	58	968	8	661	58	290	8	860	58	376
9	243	59	·10003	9	694	59	322	9	891	59	406
10	279	60	037	10	727	60	354	10	922	60	435
11	314	61	072	11	760	61	386	11	953	61	465
12	350	62	106	12	793	62	418	12	983	62	495
13	386	63	140	13	826	63	450	13	·15014	63	524
14	422	64	175	14	860	64	481	14	045	64	554
15	457	65	209	15	893	65	513	15	076	65	584
16	493	66	243	16	926	66	545	16	106	66	613
17	529	67	278	17	959	67	577	17	137	67	643
18	565	68	312	18	992	68	609	18	168	68	673
19	600	69	346	19	·12024	69	640	19	198	69	702
20	636	70	380	20	057	70	672	20	229	70	732
21	672	71	415	21	090	71	704	21	259	71	761
22	707	72	449	22	123	72	735	22	290	72	791
23	743	73	483	23	156	73	767	23	320	73	820
24	778	74	517	24	189	74	799	24	351	74	850
25	814	75	551	25	222	75	830	25	381	75	879
26	849	76	585	26	254	76	862	26	412	76	909
27	884	77	619	27	287	77	893	27	442	77	938
28	920	78	653	28	320	78	925	28	473	78	967
29	955	79	687	29	352	79	956	29	·503	79	997
30	991	80	721	30	385	80	988	30	534	80	·17026
31	·09026	81	755	31	418	81	·14019	31	564	81	056
32	061	82	789	32	450	82	051	32	594	82	085
33	096	83	823	33	483	83	082	33	625	83	114
34	132	84	856	34	516	84	114	34	655	84	143
35	167	85	890	35	548	85	145	35	685	85	173
36	202	86	924	36	581	86	176	36	715	86	202
37	237	87	958	37	613	87	208	37	746	87	231
38	272	88	992	38	646	88	239	38	776	88	260
39	307	89	·11025	39	678	89	270	39	806	89	289
40	342	90	059	40	710	90	301	40	836	90	319
41	377	91	093	41	743	91	333	41	866	91	348
42	412	92	126	42	775	92	364	42	897	92	377
43	447	93	160	43	808	93	395	43	927	93	406
44	482	94	193	44	840	94	426	44	957	94	435
45	517	95	227	45	872	95	457	45	987	95	464
46	552	96	260	46	905	96	489	46	·16017	96	493
47	587	97	294	47	937	97	520	47	047	97	522
48	621	98	327	48	969	98	551	48	077	98	551
49	656	99	361	49	·13001	99	582	49	107	99	580

1500				1600				1700			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·17609	50	3·19033	0	3·20412	50	3·21748	0	3·23045	50	3·24304
1	638	51	061	1	439	51	775	1	070	51	329
2	667	52	089	2	466	52	801	2	096	52	353
3	696	53	117	3	493	53	827	3	121	53	378
4	725	54	145	4	520	54	854	4	147	54	403
5	754	55	173	5	547	55	880	5	172	55	428
6	782	56	201	6	575	56	906	6	198	56	452
7	811	57	229	7	602	57	932	7	223	57	477
8	840	58	257	8	629	58	958	8	249	58	502
9	869	59	285	9	656	59	985	9	274	59	527
10	898	60	312	10	683	60	·22011	10	300	60	551
11	926	61	340	11	710	61	037	11	325	61	576
12	955	62	368	12	736	62	063	12	350	62	601
13	984	63	396	13	763	63	089	13	376	63	625
14	·18013	64	424	14	790	64	115	14	401	64	650
15	041	65	451	15	817	65	141	15	426	65	674
16	070	66	479	16	844	66	167	16	452	66	699
17	099	67	507	17	871	67	194	17	477	67	724
18	127	68	535	18	898	68	220	18	502	68	748
19	156	69	562	19	925	69	246	19	528	69	773
20	184	70	590	20	952	70	272	20	553	70	797
21	213	71	618	21	978	71	298	21	578	71	822
22	241	72	645	22	·21005	72	324	22	603	72	846
23	270	73	673	23	032	73	350	23	629	73	871
24	298	74	700	24	059	74	376	24	654	74	895
25	327	75	728	25	085	75	401	25	679	75	920
26	355	76	756	26	112	76	427	26	704	76	944
27	384	77	783	27	139	77	453	27	729	77	969
28	412	78	811	28	165	78	479	28	754	78	993
29	441	79	838	29	192	79	505	29	779	79	·25018
30	469	80	866	30	219	80	531	30	805	80	042
31	498	81	893	31	245	81	557	31	830	81	066
32	526	82	921	32	272	82	583	32	855	82	091
33	554	83	948	33	299	83	608	33	880	83	115
34	583	84	976	34	325	84	634	34	905	84	139
35	611	85	·20003	35	352	85	660	35	930	85	164
36	639	86	030	36	378	86	686	36	955	86	188
37	667	87	058	37	405	87	712	37	980	87	212
38	696	88	085	38	431	88	737	38	·24005	88	237
39	724	89	112	39	458	89	763	39	030	89	261
40	752	90	140	40	484	90	789	40	055	90	285
41	780	91	167	41	511	91	814	41	080	91	310
42	808	92	194	42	537	92	840	42	105	92	334
43	837	93	222	43	564	93	866	43	130	93	358
44	865	94	249	44	590	94	891	44	155	94	382
45	893	95	276	45	617	95	917	45	180	95	406
46	921	96	303	46	643	96	943	46	204	96	431
47	949	97	330	47	669	97	968	47	229	97	455
48	977	98	358	48	696	98	994	48	254	98	479
49	·19005	99	385	49	722	99	·23019	49	279	99	503

1800				1900				2000			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·25527	50	3·26717	0	3·27875	50	3·29003	0	3·30103	50	3·31175
1	551	51	741	1	898	51	026	1	125	51	197
2	575	52	764	2	921	52	048	2	146	52	218
3	600	53	788	3	944	53	070	3	168	53	239
4	624	54	811	4	968	54	092	4	190	54	260
5	648	55	834	5	989	55	115	5	211	55	281
6	672	56	858	6	·28012	56	137	6	233	56	302
7	696	57	881	7	035	57	159	7	255	57	323
8	720	58	905	8	058	58	181	8	276	58	345
9	744	59	928	9	081	59	203	9	298	59	366
10	768	60	951	10	103	60	226	10	320	60	387
11	792	61	975	11	126	61	248	11	341	61	408
12	816	62	998	12	149	62	270	12	363	62	429
13	840	63	·27021	13	171	63	292	13	384	63	450
14	864	64	045	14	194	64	314	14	406	64	471
15	888	65	068	15	217	65	336	15	428	65	492
16	912	66	091	16	240	66	358	16	449	66	513
17	935	67	114	17	262	67	380	17	471	67	534
18	959	68	138	18	285	68	403	18	492	68	555
19	983	69	161	19	307	69	425	19	514	69	576
20	·26007	70	184	20	330	70	447	20	535	70	597
21	031	71	207	21	353	71	469	21	557	71	618
22	055	72	231	22	375	72	491	22	578	72	639
23	079	73	254	23	398	73	513	23	600	73	660
24	102	74	277	24	421	74	535	24	621	74	681
25	126	75	300	25	443	75	557	25	642	75	702
26	150	76	323	26	466	76	579	26	664	76	723
27	174	77	346	27	488	77	601	27	685	77	744
28	198	78	370	28	511	78	623	28	707	78	765
29	221	79	393	29	533	79	645	29	728	79	785
30	245	80	416	30	556	80	667	30	750	80	806
31	269	81	438	31	578	81	688	31	771	81	827
32	293	82	462	32	601	82	710	32	792	82	848
33	316	83	485	33	623	83	732	33	814	83	869
34	340	84	508	34	646	84	754	34	835	84	890
35	364	85	531	35	668	85	776	35	856	85	911
36	387	86	554	36	691	86	798	36	878	86	931
37	411	87	577	37	713	87	820	37	899	87	952
38	435	88	600	38	735	88	842	38	920	88	973
39	458	89	623	39	758	89	863	39	942	89	994
40	482	90	646	40	780	90	885	40	963	90	·32015
41	505	91	669	41	803	91	907	41	984	91	035
42	529	92	692	42	825	92	929	42	·31006	92	056
43	553	93	715	43	847	93	951	43	027	93	077
44	576	94	738	44	870	94	973	44	048	94	098
45	600	95	761	45	892	95	994	45	069	95	118
46	623	96	784	46	914	96	·30016	46	091	96	139
47	647	97	807	47	937	97	038	47	112	97	160
48	670	98	830	48	959	98	060	48	133	98	181
49	694	99	852	49	981	99	081	49	154	99	201

2100				2200				2300			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·32222	50	3·33244	0	3·34242	50	3·35218	0	3·36173	50	3·37107
1	243	51	264	1	262	51	238	1	192	51	125
2	263	52	284	2	282	52	257	2	211	52	144
3	284	53	304	3	301	53	276	3	229	53	162
4	305	54	325	4	321	54	295	4	248	54	181
5	325	55	345	5	341	55	315	5	267	55	199
6	346	56	365	6	361	56	334	6	286	56	218
7	366	57	385	7	380	57	353	7	305	57	236
8	387	58	405	8	400	58	372	8	324	58	254
9	408	59	425	9	420	59	392	9	342	59	273
10	428	60	445	10	439	60	411	10	361	60	291
11	449	61	465	11	459	61	430	11	380	61	310
12	469	62	486	12	479	62	449	12	399	62	328
13	490	63	506	13	498	63	468	13	418	63	346
14	510	64	526	14	518	64	488	14	436	64	365
15	531	65	546	15	537	65	507	15	455	65	383
16	552	66	566	16	557	66	526	16	474	66	401
17	572	67	586	17	577	67	545	17	493	67	420
18	593	68	606	18	596	68	564	18	511	68	438
19	613	69	626	19	616	69	583	19	530	69	457
20	634	70	646	20	635	70	603	20	549	70	475
21	654	71	666	21	655	71	622	21	568	71	493
22	675	72	686	22	674	72	641	22	586	72	511
23	695	73	706	23	694	73	660	23	605	73	530
24	715	74	726	24	713	74	679	24	624	74	548
25	736	75	746	25	733	75	698	25	642	75	566
26	756	76	766	26	753	76	717	26	661	76	585
27	777	77	786	27	772	77	736	27	680	77	603
28	797	78	806	28	792	78	755	28	698	78	621
29	818	79	826	29	811	79	774	29	717	79	639
30	838	80	846	30	830	80	793	30	736	80	658
31	858	81	866	31	850	81	813	31	754	81	676
32	879	82	885	32	869	82	832	32	773	82	694
33	899	83	905	33	889	83	851	33	791	83	712
34	919	84	925	34	908	84	870	34	810	84	731
35	940	85	945	35	928	85	889	35	829	85	749
36	960	86	965	36	947	86	908	36	847	86	767
37	980	87	985	37	967	87	927	37	866	87	785
38	·33001	88	·34005	38	986	88	946	38	884	88	803
39	021	89	025	39	·35005	89	965	39	903	89	822
40	041	90	044	40	025	90	984	40	922	90	840
41	062	91	064	41	044	91	·36003	41	940	91	858
42	082	92	084	42	064	92	021	42	959	92	876
43	102	93	104	43	083	93	040	43	977	93	894
44	122	94	124	44	102	94	059	44	996	94	912
45	143	95	143	45	122	95	078	45	·37014	95	931
46	163	96	163	46	141	96	097	46	033	96	949
47	183	97	183	47	160	97	116	47	051	97	967
48	203	98	203	48	180	98	135	48	070	98	985
49	224	99	223	49	199	99	154	49	088	99	·38003

2400				2500				2600			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·38021	50	3·38917	0	3·39794	50	3·40654	0	3·41497	50	3·42325
1	039	51	934	1	811	51	671	1	514	51	341
2	057	52	952	2	829	52	688	2	531	52	357
3	075	53	970	3	846	53	705	3	547	53	374
4	093	54	987	4	863	54	722	4	564	54	390
5	112	55	·39005	5	881	55	739	5	581	55	406
6	130	56	023	6	898	56	756	6	597	56	423
7	148	57	041	7	915	57	773	7	614	57	439
8	166	58	058	8	933	58	790	8	631	58	455
9	184	59	076	9	950	59	807	9	647	59	472
10	202	60	094	10	967	60	824	10	664	60	488
11	220	61	111	11	985	61	841	11	681	61	504
12	238	62	129	12	·40002	62	858	12	697	62	521
13	256	63	146	13	019	63	875	13	714	63	537
14	274	64	164	14	037	64	892	14	731	64	553
15	292	65	182	15	054	65	909	15	747	65	570
16	310	66	199	16	071	66	926	16	764	66	586
17	328	67	217	17	088	67	943	17	780	67	602
18	346	68	235	18	106	68	960	18	797	68	619
19	364	69	252	19	123	69	976	19	814	69	635
20	382	70	270	20	140	70	993	20	830	70	651
21	399	71	287	21	157	71	·41010	21	847	71	667
22	417	72	305	22	175	72	027	22	863	72	684
23	435	73	322	23	192	73	044	23	880	73	700
24	453	74	340	24	209	74	061	24	896	74	716
25	471	75	358	25	226	75	078	25	913	75	732
26	489	76	375	26	243	76	095	26	929	76	749
27	507	77	393	27	261	77	111	27	946	77	765
28	525	78	410	28	278	78	128	28	963	78	781
29	543	79	428	29	295	79	145	29	979	79	797
30	561	80	445	30	312	80	162	30	996	80	813
31	578	81	463	31	329	81	179	31	·42012	81	830
32	596	82	480	32	346	82	196	32	029	82	846
33	614	83	498	33	364	83	212	33	045	83	862
34	632	84	515	34	381	84	229	34	062	84	878
35	650	85	533	35	398	85	246	35	078	85	894
36	668	86	550	36	415	86	263	36	095	86	911
37	686	87	568	37	432	87	280	37	111	87	927
38	703	88	585	38	449	88	296	38	127	88	943
39	721	89	602	39	466	89	313	39	144	89	959
40	739	90	620	40	483	90	330	40	160	90	975
41	757	91	637	41	500	91	347	41	177	91	991
42	775	92	655	42	518	92	363	42	193	92	·43008
43	792	93	672	43	535	93	380	43	210	93	024
44	810	94	690	44	552	94	397	44	226	94	040
45	828	95	707	45	569	95	414	45	243	95	056
46	846	96	724	46	586	96	430	46	259	96	072
47	863	97	742	47	603	97	447	47	275	97	088
48	881	98	759	48	620	98	464	48	292	98	104
49	899	99	777	49	637	99	481	49	308	99	120

2700				2800				2900			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·43136	50	3·43933	0	3·44716	50	3·45484	0	3·46240	50	3·46982
1	152	51	949	1	731	51	500	1	255	51	997
2	169	52	965	2	747	52	515	2	270	52	·47012
3	185	53	981	3	762	53	530	3	285	53	026
4	201	54	996	4	778	54	545	4	300	54	041
5	217	55	·44012	5	793	55	561	5	315	55	056
6	233	56	028	6	809	56	576	6	330	56	070
7	249	57	044	7	824	57	591	7	344	57	085
8	265	58	059	8	840	58	606	8	359	58	100
9	281	59	075	9	855	59	621	9	374	59	114
10	297	60	091	10	871	60	637	10	389	60	129
11	313	61	107	11	886	61	652	11	404	61	144
12	329	62	122	12	902	62	667	12	419	62	159
13	345	63	138	13	917	63	682	13	434	63	173
14	361	64	154	14	932	64	697	14	449	64	188
15	377	65	170	15	948	65	712	15	464	65	202
16	393	66	185	16	963	66	728	16	479	66	217
17	409	67	201	17	979	67	743	17	494	67	232
18	425	68	217	18	994	68	758	18	509	68	246
19	441	69	232	19	·45010	69	773	19	523	69	261
20	457	70	248	20	025	70	788	20	538	70	276
21	473	71	264	21	040	71	802	21	553	71	290
22	489	72	279	22	056	72	818	22	568	72	305
23	505	73	295	23	071	73	834	23	583	73	319
24	521	74	311	24	086	74	849	24	598	74	334
25	537	75	326	25	102	75	864	25	613	75	349
26	553	76	342	26	117	76	879	26	627	76	363
27	569	77	358	27	133	77	894	27	642	77	378
28	584	78	373	28	148	78	909	28	657	78	392
29	600	79	389	29	163	79	924	29	672	79	407
30	616	80	404	30	179	80	939	30	687	80	422
31	632	81	420	31	194	81	954	31	702	81	436
32	648	82	436	32	209	82	969	32	716	82	451
33	664	83	451	33	225	83	984	33	731	83	465
34	680	84	467	34	240	84	·46000	34	746	84	480
35	696	85	483	35	255	85	015	35	761	85	494
36	712	86	498	36	271	86	030	36	776	86	509
37	727	87	514	37	286	87	045	37	790	87	524
38	743	88	529	38	301	88	060	38	805	88	538
39	759	89	545	39	317	89	075	39	820	89	553
40	775	90	560	40	332	90	090	40	835	90	567
41	791	91	576	41	347	91	105	41	849	91	582
42	807	92	592	42	362	92	120	42	864	92	596
43	823	93	607	43	378	93	135	43	879	93	611
44	838	94	623	44	393	94	150	44	894	94	625
45	854	95	638	45	408	95	165	45	909	95	640
46	870	96	654	46	423	96	180	46	923	96	654
47	886	97	669	47	439	97	195	47	938	97	669
48	902	98	685	48	454	98	210	48	953	98	683
49	917	99	700	49	469	99	225	49	967	99	698

3000				3100				3200			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·47712	50	3·48430	0	3·49136	50	3·49831	0	3·50515	50	3·51188
1	26	51	44	1	50	51	45	1	28	51	·51202
2	41	52	58	2	64	52	59	2	42	52	15
3	55	53	73	3	78	53	72	3	56	53	28
4	70	54	87	4	92	54	86	4	69	54	42
5	84	55	·48501	5	·49210	55	·49900	5	83	55	55
6	99	56	15	6	20	56	14	6	96	56	68
7	·47813	57	29	7	34	57	27	7	·50610	57	82
8	28	58	44	8	48	58	41	8	23	58	95
9	42	59	58	9	62	59	55	9	37	59	·51308
10	57	60	72	10	76	60	69	10	50	60	22
11	71	61	86	11	90	61	82	11	64	61	35
12	85	62	·48600	12	·49304	62	96	12	78	62	48
13	·47900	63	15	13	18	63	·50010	13	91	63	62
14	14	64	29	14	32	64	24	14	·50704	64	75
15	29	65	43	15	46	65	37	15	18	65	88
16	43	66	57	16	60	66	51	16	32	66	·51402
17	57	67	71	17	74	67	65	17	45	67	15
18	72	68	85	18	88	68	78	18	59	68	28
19	86	69	·48700	19	·49401	69	92	19	72	69	41
20	·48000	70	14	20	15	70	·50106	20	86	70	55
21	15	71	28	21	29	71	20	21	·50800	71	68
22	29	72	42	22	43	72	33	22	13	72	81
23	44	73	56	23	57	73	47	23	26	73	95
24	58	74	70	24	71	74	61	24	39	74	·51508
25	72	75	84	25	85	75	74	25	53	75	21
26	87	76	99	26	99	76	88	26	66	76	34
27	·48101	77	·48813	27	·49513	77	·50202	27	80	77	48
28	15	78	27	28	27	78	15	28	93	78	61
29	30	79	41	29	40	79	29	29	·50907	79	74
30	44	80	55	30	54	80	43	30	20	80	87
31	58	81	69	31	68	81	56	31	34	81	·51601
32	73	82	83	32	82	82	70	32	47	82	14
33	87	83	97	33	96	83	84	33	61	83	27
34	·48201	84	·48911	34	·49610	84	97	34	74	84	40
35	16	85	25	35	24	85	·50311	35	87	85	54
36	30	86	39	36	38	86	25	36	·51000	86	67
37	44	87	54	37	51	87	38	37	14	87	80
38	59	88	68	38	65	88	52	38	28	88	93
39	73	89	82	39	79	89	65	39	41	89	·51706
40	87	90	96	40	93	90	79	40	54	90	20
41	·48302	91	·49010	41	·49710	91	93	41	68	91	33
42	16	92	24	42	21	92	·50406	42	81	92	46
43	30	93	38	43	34	93	20	43	95	93	59
44	44	94	52	44	48	94	33	44	·51108	94	72
45	59	95	66	45	62	95	47	45	21	95	86
46	73	96	80	46	76	96	61	46	35	96	99
47	87	97	94	47	90	97	78	47	48	97	·51812
48	·48401	98	·49108	48	·49803	98	80	48	62	98	25
49	16	99	22	49	17	99	·50501	49	75	99	38

3900				4000				4100			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·59106	50	3·59660	0	3·60206	50	3·60745	0	3·61278	50	3·61805
1	17	51	71	1	17	51	56	1	89	51	15
2	29	52	82	2	28	52	67	2	·61300	52	26
3	40	53	93	3	39	53	78	3	10	53	36
4	51	54	·59704	4	49	54	88	4	21	54	47
5	62	55	15	5	60	55	99	5	31	55	57
6	73	56	26	6	71	56	·60810	6	42	56	68
7	84	57	37	7	82	57	20	7	52	57	78
8	95	58	48	8	93	58	31	8	63	58	88
9	·59207	59	59	9	·60304	59	42	9	74	59	99
10	18	60	70	10	14	60	53	10	84	60	·61909
11	29	61	80	11	25	61	63	11	95	61	20
12	40	62	91	12	36	62	74	12	·61405	62	30
13	51	63	·59802	13	47	63	85	13	16	63	41
14	62	64	13	14	58	64	95	14	26	64	51
15	73	65	24	15	69	65	·60906	15	37	65	61
16	84	66	35	16	79	66	17	16	48	66	72
17	95	67	46	17	90	67	27	17	58	67	82
18	·59306	68	57	18	·60401	68	38	18	69	68	93
19	18	69	68	19	12	69	49	19	79	69	·62003
20	29	70	79	20	23	70	59	20	90	70	14
21	41	71	90	21	33	71	70	21	·61500	71	24
22	51	72	·59901	22	44	72	81	22	11	72	34
23	62	73	12	23	55	73	91	23	21	73	45
24	73	74	23	24	66	74	·61002	24	32	74	55
25	84	75	34	25	77	75	13	25	42	75	66
26	95	76	45	26	87	76	23	26	53	76	76
27	·59406	77	56	27	98	77	34	27	63	77	86
28	17	78	67	28	·60509	78	45	28	74	78	97
29	28	79	77	29	20	79	55	29	84	79	·62107
30	39	80	88	30	30	80	66	30	95	80	18
31	50	81	99	31	41	81	77	31	·61606	81	28
32	61	82	·60010	32	52	82	87	32	16	82	38
33	72	83	21	33	63	83	98	33	27	83	49
34	83	84	32	34	74	84	·61109	34	37	84	59
35	94	85	43	35	84	85	19	35	48	85	70
36	·59505	86	54	36	95	86	30	36	58	86	80
37	17	87	65	37	·60606	87	40	37	69	87	90
38	28	88	76	38	17	88	51	38	79	88	·62201
39	39	89	86	39	27	89	62	39	90	89	11
40	50	90	97	40	38	90	72	40	·61700	90	21
41	61	91	·60108	41	49	91	83	41	11	91	32
42	72	92	19	42	60	92	94	42	21	92	42
43	83	93	30	43	70	93	·61204	43	31	93	52
44	94	94	41	44	81	94	15	44	42	94	63
45	·59605	95	52	45	92	95	25	45	52	95	73
46	16	96	63	46	·60703	96	36	46	63	96	84
47	27	97	73	47	13	97	47	47	73	97	94
48	38	98	84	48	24	98	57	48	84	98	·62304
49	49	99	95	49	35	99	68	49	94	99	15

4200				4300				4400			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·62325	50	3·62839	0	3·63347	50	3·63849	0	3·64345	50	3·64836
1	35	51	49	1	57	51	59	1	55	51	46
2	46	52	59	2	67	52	69	2	65	52	56
3	56	53	70	3	77	53	79	3	75	53	65
4	66	54	80	4	87	54	89	4	85	54	75
5	77	55	90	5	97	55	99	5	95	55	85
6	87	56	·62900	6	·63407	56	·63909	6	·64404	56	95
7	97	57	10	7	17	57	19	7	14	57	·64904
8	·62408	58	21	8	28	58	29	8	24	58	14
9	18	59	31	9	38	59	39	9	34	59	24
10	28	60	41	10	48	60	49	10	44	60	33
11	39	61	51	11	58	61	59	11	54	61	43
12	49	62	61	12	68	62	69	12	64	62	53
13	59	63	72	13	78	63	79	13	73	63	63
14	69	64	82	14	88	64	89	14	83	64	72
15	78	65	92	15	98	65	99	15	93	65	82
16	90	66	·63002	16	·63508	66	·64009	16	·64503	66	92
17	·62500	67	12	17	18	67	18	17	13	67	·65002
18	11	68	22	18	28	68	28	18	23	68	11
19	21	69	33	19	38	69	38	19	32	69	21
20	31	70	43	20	48	70	48	20	42	70	31
21	42	71	53	21	58	71	58	21	52	71	40
22	52	72	63	22	68	72	68	22	62	72	50
23	62	73	73	23	79	73	78	23	72	73	60
24	72	74	83	24	89	74	88	24	82	74	70
25	83	75	94	25	99	75	98	25	91	75	79
26	93	76	·63104	26	·63609	76	·64108	26	·64601	76	89
27	·62603	77	14	27	19	77	18	27	11	77	99
28	13	78	24	28	29	78	28	28	21	78	·65108
29	24	79	34	29	39	79	37	29	31	79	18
30	34	80	44	30	49	80	47	30	40	80	28
31	44	81	55	31	59	81	57	31	50	81	37
32	55	82	65	32	69	82	67	32	60	82	47
33	65	83	75	33	79	83	77	33	70	83	57
34	75	84	85	34	89	84	87	34	80	84	67
35	85	85	95	35	99	85	97	35	89	85	76
36	96	86	·63205	36	·63709	86	·64207	36	99	86	86
37	·62706	87	15	37	19	87	17	37	·64709	87	96
38	16	88	25	38	29	88	27	38	19	88	·65205
39	26	89	36	39	39	89	37	39	29	89	15
40	37	90	46	40	49	90	46	40	38	90	25
41	47	91	56	41	59	91	56	41	48	91	34
42	57	92	66	42	69	92	66	42	58	92	44
43	67	93	76	43	79	93	76	43	68	93	54
44	78	94	86	44	89	94	86	44	77	94	63
45	88	95	96	45	99	95	96	45	87	95	73
46	98	96	·63306	46	·63809	96	·64306	46	97	96	83
47	·62808	97	16	47	19	97	16	47	·64807	97	93
48	18	98	27	48	29	98	26	48	16	98	·65302
49	29	99	37	49	39	99	35	49	26	99	12

4500				4600				4700			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·65321	50	3·65801	0	3·66276	50	3·66745	0	3·67210	50	3·67669
1	31	51	11	1	85	51	55	1	19	51	78
2	41	52	20	2	94	52	64	2	28	52	88
3	50	53	30	3	·66304	53	73	3	37	53	97
4	60	54	39	4	14	54	83	4	47	54	·67706
5	69	55	49	5	23	55	92	5	56	55	15
6	79	56	58	6	32	56	·66801	6	65	56	24
7	89	57	68	7	42	57	11	7	74	57	33
8	98	58	77	8	51	58	20	8	84	58	42
9	·65408	59	87	9	61	59	29	9	93	59	52
10	18	60	96	10	70	60	39	10	·67302	60	61
11	27	61	·65906	11	80	61	48	11	11	61	70
12	37	62	16	12	89	62	57	12	21	62	79
13	47	63	25	13	98	63	67	13	30	63	88
14	56	64	35	14	·66408	64	76	14	39	64	97
15	66	65	44	15	17	65	85	15	48	65	·67806
16	75	66	54	16	27	66	94	16	57	66	15
17	85	67	63	17	36	67	·66904	17	67	67	25
18	95	68	73	18	45	68	13	18	76	68	34
19	·65504	69	82	19	55	69	22	19	85	69	43
20	14	70	92	20	64	70	32	20	95	70	52
21	23	71	·66001	21	74	71	41	21	·67403	71	61
22	33	72	11	22	83	72	50	22	13	72	70
23	43	73	20	23	92	73	60	23	22	73	79
24	52	74	30	24	·66502	74	69	24	31	74	88
25	62	75	39	25	11	75	78	25	40	75	97
26	71	76	49	26	21	76	87	26	49	76	·67906
27	81	77	58	27	30	77	97	27	59	77	16
28	91	78	68	28	39	78	·67006	28	68	78	25
29	·65600	79	77	29	49	79	15	29	77	79	34
30	10	80	87	30	58	80	25	30	86	80	43
31	19	81	96	31	67	81	34	31	95	81	52
32	29	82	·66106	32	77	82	43	32	·67504	82	61
33	39	83	15	33	86	83	52	33	14	83	70
34	48	84	24	34	96	84	62	34	23	84	79
35	58	85	34	35	·66605	85	71	35	32	85	88
36	67	86	43	36	14	86	80	36	41	86	97
37	77	87	53	37	24	87	89	37	50	87	·68006
38	86	88	62	38	33	88	99	38	60	88	15
39	96	89	72	39	42	89	·67108	39	69	89	24
40	·65706	90	81	40	52	90	17	40	78	90	34
41	15	91	91	41	61	91	27	41	87	91	43
42	25	92	·66200	42	71	92	36	42	96	92	52
43	34	93	10	43	80	93	45	43	·67605	93	61
44	44	94	19	44	89	94	54	44	14	94	70
45	53	95	29	45	99	95	64	45	24	95	79
46	63	96	38	46	·66708	96	73	46	33	96	88
47	72	97	47	47	17	97	82	47	42	97	97
48	82	98	57	48	26	98	91	48	51	98	·68106
49	92	99	66	49	36	99	·67200	49	60	99	15

Nos. 4800 to 5099 — TABLES OF LOGARITHMS. — Logarithms 3·68124 to 3·70748

4800				4900				5000			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·68124	50	3·68574	0	3·69020	50	3·69460	0	3·69897	50	3·70329
1	33	51	83	1	28	51	69	1	·69906	51	38
2	42	52	92	2	37	52	78	2	14	52	46
3	51	53	·68601	3	46	53	87	3	23	53	55
4	60	54	10	4	55	54	96	4	32	54	64
5	69	55	19	5	64	55	·69504	5	40	55	72
6	78	56	28	6	73	56	13	6	49	56	81
7	87	57	37	7	82	57	22	7	58	57	89
8	96	58	46	8	90	58	31	8	66	58	98
9	·68205	59	55	9	99	59	39	9	75	59	·70406
10	15	60	64	10	·69108	60	48	10	84	60	15
11	24	61	73	11	17	61	57	11	92	61	24
12	33	62	81	12	26	62	66	12	·70001	62	32
13	42	63	90	13	35	63	74	13	10	63	41
14	51	64	99	14	44	64	83	14	18	64	49
15	60	65	·68708	15	52	65	92	15	27	65	56
16	69	66	17	16	61	66	·69601	16	36	66	67
17	78	67	26	17	70	67	09	17	44	67	75
18	87	68	35	18	79	68	18	18	53	68	84
19	96	69	44	19	88	69	27	19	62	69	92
20	·68305	70	53	20	96	70	36	20	70	70	·70501
21	14	71	62	21	·69205	71	44	21	79	71	09
22	23	72	71	22	14	72	53	22	88	72	18
23	32	73	80	23	23	73	62	23	96	73	26
24	41	74	89	24	32	74	71	24	·70105	74	35
25	50	75	97	25	41	75	79	25	14	75	44
26	59	76	·68806	26	49	76	88	26	22	76	52
27	68	77	15	27	58	77	97	27	31	77	61
28	77	78	24	28	67	78	·69705	28	40	78	69
29	86	79	33	29	76	79	14	29	48	79	78
30	95	80	42	30	85	80	23	30	57	80	86
31	·68404	81	51	31	93	81	32	31	65	81	95
32	13	82	60	32	·69302	82	40	32	74	82	·70603
33	22	83	69	33	11	83	49	33	83	83	12
34	31	84	78	34	20	84	58	34	91	84	21
35	40	85	86	35	29	85	67	35	·70200	85	29
36	49	86	95	36	36	86	75	36	09	86	38
37	58	87	·68904	37	46	87	84	37	17	87	46
38	67	88	13	38	55	88	93	38	26	88	55
39	76	89	22	39	64	89	·69801	39	34	89	63
40	85	90	31	40	73	90	10	40	43	90	72
41	94	91	40	41	81	91	19	41	52	91	80
42	·68502	92	49	42	90	92	27	42	60	92	89
43	11	93	58	43	99	93	36	43	69	93	97
44	20	94	66	44	·69408	94	45	44	78	94	·70706
45	29	95	75	45	17	95	54	45	86	95	14
46	38	96	84	46	25	96	62	46	95	96	23
47	47	97	93	47	34	97	71	47	·70303	97	31
48	56	98	·69002	48	43	98	80	48	12	98	40
49	65	99	11	49	52	99	88	49	21	99	48

LOGARITHMAL PER-CENTAGE TABLE,

By which the Difference per Cent, from $\frac{1}{32}$ to $10\frac{31}{32}$, between any two Numbers may be found, and shewing the Difference between the Logarithm of 100 *and that of any Number under* 100.

	0	1	2	3	4	5	6	7	8	9	10
0	0	436	877	1323	1773	2228	2687	3152	3621	4096	4576
$\frac{1}{32}$	14	450	891	1337	1787	2242	2702	3166	3636	4111	4591
$\frac{1}{16}$ or $\frac{2}{32}$	27	464	905	1351	1801	2256	2716	3181	3651	4126	4606
$\frac{3}{32}$	41	478	919	1365	1815	2271	2731	3196	3665	4141	4621
$\frac{1}{8}$ or $\frac{4}{32}$	54	491	933	1379	1829	2285	2745	3210	3680	4156	4636
$\frac{5}{32}$	68	505	947	1393	1844	2299	2759	3225	3695	4170	4651
$\frac{3}{16}$ or $\frac{6}{32}$	82	519	961	1407	1858	2313	2774	3239	3710	4185	4666
$\frac{7}{32}$	95	533	974	1421	1872	2328	2788	3254	3725	4200	4681
$\frac{1}{4}$ or $\frac{8}{32}$	109	546	988	1435	1886	2342	2803	3269	3739	4215	4697
$\frac{9}{32}$	122	560	1002	1449	1900	2356	2817	3283	3754	4230	4712
$\frac{5}{16}$ or $\frac{10}{32}$	136	574	1016	1463	1914	2371	2832	3298	3769	4245	4727
$\frac{11}{32}$	150	588	1030	1477	1929	2385	2846	3313	3784	4260	4742
$\frac{3}{8}$ or $\frac{12}{32}$	163	601	1044	1491	1943	2399	2861	3327	3799	4275	4757
$\frac{13}{32}$	177	615	1058	1505	1957	2414	2875	3342	3813	4290	4772
$\frac{7}{16}$ or $\frac{14}{32}$	190	629	1072	1519	1971	2428	2890	3356	3828	4305	4787
$\frac{15}{32}$	204	643	1086	1533	1985	2442	2904	3371	3843	4320	4803
$\frac{1}{2}$ or $\frac{16}{32}$	218	656	1100	1547	2000	2457	2919	3386	3858	4335	4818
$\frac{17}{32}$	231	670	1113	1561	2014	2471	2933	3400	3873	4350	4833
$\frac{9}{16}$ or $\frac{18}{32}$	245	684	1127	1575	2028	2486	2948	3415	3888	4365	4848
$\frac{19}{32}$	259	698	1141	1589	2042	2500	2962	3430	3902	4380	4863
$\frac{5}{8}$ or $\frac{20}{32}$	272	712	1155	1604	2057	2514	2977	3445	3917	4395	4878
$\frac{21}{32}$	286	725	1169	1618	2071	2529	2991	3459	3932	4410	4894
$\frac{11}{16}$ or $\frac{22}{32}$	300	739	1183	1632	2085	2543	3006	3474	3947	4425	4909
$\frac{23}{32}$	313	753	1197	1646	2099	2557	3021	3489	3962	4440	4924
$\frac{3}{4}$ or $\frac{24}{32}$	327	767	1211	1660	2113	2572	3035	3503	3977	4455	4939
$\frac{25}{32}$	341	781	1225	1674	2128	2586	3050	3518	3992	4470	4954
$\frac{13}{16}$ or $\frac{26}{32}$	354	794	1239	1688	2142	2601	3064	3533	4006	4485	4970
$\frac{27}{32}$	368	808	1253	1702	2156	2615	3079	3548	4021	4500	4985
$\frac{7}{8}$ or $\frac{28}{32}$	382	822	1267	1716	2171	2629	3093	3562	4036	4515	5000
$\frac{29}{32}$	395	836	1281	1730	2185	2644	3108	3577	4051	4531	5015

TABLE

For finding the Pay-weight of Silver and Gold when better or worse than Standard.

SILVER.						GOLD.					
Ounces.	Oz.	dwt.	gr.	Oz.	dwt. gr.	Ounces.	Oz.	dwt.	gr.	Oz.	dwt. gr.
100000	225	4	12	95	4 7	100000	284	1	20	95	5 10
90000	202	14	1	90	4 1	90000	255	13	15	90	5 3
80000	180	3	14	85	3 20	80000	227	5	11	85	4 20
70000	157	13	7	80	3 14	70000	198	17	7	80	4 13
60000	135	2	17	75	3 9	60000	170	9	2	75	4 6
50000	112	12	6	70	3 4	50000	142	0	22	70	3 23
40000	90	1	19	65	2 22	40000	113	12	17	65	3 17
30000	67	11	8	60	2 16	30000	85	4	13	60	3 10
20000	45	0	22	55	2 11	20000	56	16	9	55	3 3
10000	22	10	11	50	2 6	10000	28	8	4	50	2 20
9000	20	5	10	45	2 1	9000	25	11	9	45	2 13
8000	18	0	9	40	1 19	8000	22	14	13	40	2 7
7000	15	15	8	35	1 14	7000	19	17	17	35	2 0
6000	13	10	6	30	1 8	6000	17	0	22	30	1 17
5000	11	5	5	25	1 3	5000	14	4	2	25	1 10
4000	9	0	4	20	0 22	4000	11	7	7	20	1 3
3000	6	15	3	19	0 20½	3000	8	10	11	19	1 2
2000	4	10	2	18	0 19	2000	5	13	15	18	1 1
1000	2	5	1	17	0 18	1000	2	16	20	17	0 23
950	2	2	19	16	0 17	950	2	13	23	16	0 22
900	2	0	13	15	0 16	900	2	11	3	15	0 21
850	1	18	7	14	0 15	850	2	8	7	14	0 19
800	1	16	1	13	0 14	800	2	5	11	13	0 18
750	1	13	19	12	0 13	750	2	2	15	12	0 17
700	1	11	13	11	0 12	700	1	19	19	11	0 16
650	1	9	7	10	0 11	650	1	16	22	10	0 14
600	1	7	0	9	0 10	600	1	14	2	9	0 12
550	1	4	19	8	0 9	550	1	11	6	8	0 11
500	1	2	13	7	0 8	500	1	8	10	7	0 10
450	1	0	6	6	0 7	450	1	5	14	6	0 8
400	0	18	0	5	0 5½	400	1	2	17	5	0 7
350	0	15	18	4	0 4	350	0	19	21	4	0 5
300	0	13	12	3	0 3	300	0	17	1	3	0 4
250	0	11	6	2	0 2	250	0	14	5	2	0 2
200	0	9	0	1	0 1	200	0	11	9	1	0 1
150	0	6	18			150	0	8	13		
100	0	4	12			100	0	5	16		

FINIS.

LONDON:
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THE

CAMBIST'S COMPENDIUM.

ON BILLS OF EXCHANGE.

Bills of Exchange are written orders from one person to another, to pay a sum of money to a third.

Bills of exchange, in their general nature, may be considered as securities, used by merchants and others as a safe and easy mode of transmitting money from one place to another, and are the instruments by which exchange operations are carried on.

Bills of exchange are either inland bills or foreign bills.

Inland Bills of Exchange are those which are drawn from one place in a country or state, on another place in the same country or state, in both of which the same kinds of money are current; or when drawn by one person in a place upon another person in the same place.

Forms of Inland Bills of Exchange.

A.

£500 0 0 *Liverpool, 16th Aug.* 1827.

Three months after date, pay to Messrs. James and John Gould, or to their order, Five hundred pounds, value received, which place to account as advised.

WM. REDDER.

GEORGE SKIPTON, Esq.
London.

3900				4000				4100			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·59106	50	3·59660	0	3·60206	50	3·60745	0	3·61278	50	3·61805
1	17	51	71	1	17	51	56	1	89	51	15
2	29	52	82	2	28	52	67	2	·61300	52	26
3	40	53	93	3	39	53	78	3	10	53	36
4	51	54	·59704	4	49	54	88	4	21	54	47
5	62	55	15	5	60	55	99	5	31	55	57
6	73	56	26	6	71	56	·60810	6	42	56	68
7	84	57	37	7	82	57	20	7	52	57	78
8	95	58	48	8	93	58	31	8	63	58	88
9	·59207	59	59	9	·60304	59	42	9	74	59	99
10	18	60	70	10	14	60	53	10	84	60	·61909
11	29	61	80	11	25	61	63	11	95	61	20
12	40	62	91	12	36	62	74	12	·61405	62	30
13	51	63	·59802	13	47	63	85	13	16	63	41
14	62	64	13	14	58	64	95	14	26	64	51
15	73	65	24	15	69	65	·60906	15	37	65	61
16	84	66	35	16	79	66	17	16	48	66	72
17	95	67	46	17	90	67	27	17	58	67	82
18	·59306	68	57	18	·60401	68	38	18	69	68	93
19	18	69	68	19	12	69	49	19	79	69	·62003
20	29	70	79	20	23	70	59	20	90	70	14
21	41	71	90	21	33	71	70	21	·61500	71	24
22	51	72	·59901	22	44	72	81	22	11	72	34
23	62	73	12	23	55	73	91	23	21	73	45
24	73	74	23	24	66	74	·61002	24	32	74	55
25	84	75	34	25	77	75	13	25	42	75	66
26	95	76	45	26	87	76	23	26	53	76	76
27	·59406	77	56	27	98	77	34	27	63	77	86
28	17	78	67	28	·60509	78	45	28	74	78	97
29	28	79	77	29	20	79	55	29	84	79	·62107
30	39	80	88	30	30	80	66	30	95	80	18
31	50	81	99	31	41	81	77	31	·61606	81	28
32	61	82	·60010	32	52	82	87	32	16	82	38
33	72	83	21	33	63	83	98	33	27	83	49
34	83	84	32	34	74	84	·61109	34	37	84	59
35	94	85	43	35	84	85	19	35	48	85	70
36	·59505	86	54	36	95	86	30	36	58	86	80
37	17	87	65	37	·60606	87	40	37	69	87	90
38	28	88	76	38	17	88	51	38	79	88	·62201
39	39	89	86	39	27	89	62	39	90	89	11
40	50	90	97	40	38	90	72	40	·61700	90	21
41	61	91	·60108	41	49	91	83	41	11	91	32
42	72	92	19	42	60	92	94	42	21	92	42
43	83	93	30	43	70	93	·61204	43	31	93	52
44	94	94	41	44	81	94	15	44	42	94	63
45	·59605	95	52	45	92	95	25	45	52	95	73
46	16	96	63	46	·60703	96	36	46	63	96	84
47	27	97	73	47	13	97	47	47	73	97	94
48	38	98	84	48	24	98	57	48	84	98	·62304
49	49	99	95	49	35	99	68	49	94	99	15

4200				4300				4400			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·62325	50	3·62839	0	3·63347	50	3·63849	0	3·64345	50	3·64836
1	35	51	49	1	57	51	59	1	55	51	46
2	46	52	59	2	67	52	69	2	65	52	56
3	56	53	70	3	77	53	79	3	75	53	65
4	66	54	80	4	87	54	89	4	85	54	75
5	77	55	90	5	97	55	99	5	95	55	85
6	87	56	·62900	6	·63407	56	·63909	6	·64404	56	95
7	97	57	10	7	17	57	19	7	14	57	·64904
8	·62408	58	21	8	28	58	29	8	24	58	14
9	18	59	31	9	38	59	39	9	34	59	24
10	28	60	41	10	48	60	49	10	44	60	33
11	39	61	51	11	58	61	59	11	54	61	43
12	49	62	61	12	68	62	69	12	64	62	53
13	59	63	72	13	78	63	79	13	73	63	63
14	69	64	82	14	88	64	89	14	83	64	72
15	78	65	92	15	98	65	99	15	93	65	82
16	90	66	·63002	16	·63508	66	·64009	16	·64503	66	92
17	·62500	67	12	17	18	67	18	17	13	67	·65002
18	11	68	22	18	28	68	28	18	23	68	11
19	21	69	33	19	38	69	38	19	32	69	21
20	31	70	43	20	48	70	48	20	42	70	31
21	42	71	53	21	58	71	58	21	52	71	40
22	52	72	63	22	68	72	68	22	62	72	50
23	62	73	73	23	79	73	78	23	72	73	60
24	72	74	83	24	89	74	88	24	82	74	70
25	83	75	94	25	99	75	98	25	91	75	79
26	93	76	·63104	26	·63609	76	·64108	26	·64601	76	89
27	·62603	77	14	27	19	77	18	27	11	77	99
28	13	78	24	28	29	78	28	28	21	78	·65108
29	24	79	34	29	39	79	37	29	31	79	18
30	34	80	44	30	49	80	47	30	40	80	28
31	44	81	55	31	59	81	57	31	50	81	37
32	55	82	65	32	69	82	67	32	60	82	47
33	65	83	75	33	79	83	77	33	70	83	57
34	75	84	85	34	89	84	87	34	80	84	67
35	85	85	95	35	99	85	97	35	89	85	76
36	96	86	·63205	36	·63709	86	·64207	36	99	86	86
37	·62706	87	15	37	19	87	17	37	·64709	87	96
38	16	88	25	38	29	88	27	38	19	88	·65205
39	26	89	36	39	39	89	37	39	29	89	15
40	37	90	46	40	49	90	46	40	38	90	25
41	47	91	56	41	59	91	56	41	48	91	34
42	57	92	66	42	69	92	66	42	58	92	44
43	67	93	76	43	79	93	76	43	68	93	54
44	78	94	86	44	89	94	86	44	77	94	63
45	88	95	96	45	99	95	96	45	87	95	73
46	98	96	·63306	46	·63809	96	·64306	46	97	96	83
47	·62808	97	16	47	19	97	16	47	·64807	97	93
48	18	98	27	48	29	98	26	48	16	98	·65302
49	29	99	37	49	39	99	35	49	26	99	12

4500				4600				4700			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·65321	50	3·65801	0	3·66276	50	3·66745	0	3·67210	50	3·67669
1	31	51	11	1	85	51	55	1	19	51	78
2	41	52	20	2	94	52	64	2	28	52	88
3	50	53	30	3	·66304	53	73	3	37	53	97
4	60	54	39	4	14	54	83	4	47	54	·67706
5	69	55	49	5	23	55	92	5	56	55	15
6	79	56	58	6	32	56	·66801	6	65	56	24
7	89	57	68	7	42	57	11	7	74	57	33
8	98	58	77	8	51	58	20	8	84	58	42
9	·65408	59	87	9	61	59	29	9	93	59	52
10	18	60	96	10	70	60	39	10	·67302	60	61
11	27	61	·65906	11	80	61	48	11	11	61	70
12	37	62	16	12	89	62	57	12	21	62	79
13	47	63	25	13	98	63	67	13	30	63	88
14	56	64	35	14	·66408	64	76	14	39	64	97
15	66	65	44	15	17	65	85	15	48	65	·67806
16	75	66	54	16	27	66	94	16	57	66	15
17	85	67	63	17	36	67	·66904	17	67	67	25
18	95	68	73	18	45	68	13	18	76	68	34
19	·65504	69	82	19	55	69	22	19	85	69	43
20	14	70	92	20	64	70	32	20	95	70	52
21	23	71	·66001	21	74	71	41	21	·67403	71	61
22	33	72	11	22	83	72	50	22	13	72	70
23	43	73	20	23	92	73	60	23	22	73	79
24	52	74	30	24	·66502	74	69	24	31	74	88
25	62	75	39	25	11	75	78	25	40	75	97
26	71	76	49	26	21	76	87	26	49	76	·67906
27	81	77	58	27	30	77	97	27	59	77	16
28	91	78	68	28	39	78	·67006	28	68	78	25
29	·65600	79	77	29	49	79	15	29	77	79	34
30	10	80	87	30	58	80	25	30	86	80	43
31	19	81	96	31	67	81	34	31	95	81	52
32	29	82	·66106	32	77	82	43	32	·67504	82	61
33	39	83	15	33	86	83	52	33	14	83	70
34	48	84	24	34	96	84	62	34	23	84	79
35	58	85	34	35	·66605	85	71	35	32	85	88
36	67	86	43	36	14	86	80	36	41	86	97
37	77	87	53	37	24	87	89	37	50	87	·68006
38	86	88	62	38	33	88	99	38	60	88	15
39	96	89	72	39	42	89	·67108	39	69	89	24
40	·65706	90	81	40	52	90	17	40	78	90	34
41	15	91	91	41	61	91	27	41	87	91	43
42	25	92	·66200	42	71	92	36	42	96	92	52
43	34	93	10	43	80	93	45	43	·67605	93	61
44	44	94	19	44	89	94	54	44	14	94	70
45	53	95	29	45	99	95	64	45	24	95	79
46	63	96	38	46	·66708	96	73	46	33	96	88
47	72	97	47	47	17	97	82	47	42	97	97
48	82	98	57	48	26	98	91	48	51	98	·68106
49	92	99	66	49	36	99	·67200	49	60	99	15

4800				4900				5000			
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
0	3·68124	50	3·68574	0	3·69020	50	3·69460	0	3·69897	50	3·70329
1	33	51	83	1	28	51	69	1	·69906	51	38
2	42	52	92	2	37	52	78	2	14	52	46
3	51	53	·68601	3	46	53	87	3	23	53	55
4	60	54	10	4	55	54	96	4	32	54	64
5	69	55	19	5	64	55	·69504	5	40	55	72
6	78	56	28	6	73	56	13	6	49	56	81
7	87	57	37	7	82	57	22	7	58	57	89
8	96	58	46	8	90	58	31	8	66	58	98
9	·68205	59	55	9	99	59	39	9	75	59	·70406
10	15	60	64	10	·69108	60	48	10	84	60	15
11	24	61	73	11	17	61	57	11	92	61	24
12	33	62	81	12	26	62	66	12	·70001	62	32
13	42	63	90	13	35	63	74	13	10	63	41
14	51	64	99	14	44	64	83	14	18	64	49
15	60	65	·68708	15	52	65	92	15	27	65	56
16	69	66	17	16	61	66	·69601	16	36	66	67
17	78	67	26	17	70	67	09	17	44	67	75
18	87	68	35	18	79	68	18	18	53	68	84
19	96	69	44	19	88	69	27	19	62	69	92
20	·68305	70	53	20	96	70	36	20	70	70	·70501
21	14	71	62	21	·69205	71	44	21	79	71	09
22	23	72	71	22	14	72	53	22	88	72	18
23	32	73	80	23	23	73	62	23	96	73	26
24	41	74	89	24	32	74	71	24	·70105	74	35
25	50	75	97	25	41	75	79	25	14	75	44
26	59	76	·68806	26	49	76	88	26	22	76	52
27	68	77	15	27	58	77	97	27	31	77	61
28	77	78	24	28	67	78	·69705	28	40	78	69
29	86	79	33	29	76	79	14	29	48	79	78
30	95	80	42	30	85	80	23	30	57	80	86
31	·68404	81	51	31	93	81	32	31	65	81	95
32	13	82	60	32	·69302	82	40	32	74	82	·70603
33	22	83	69	33	11	83	49	33	83	83	12
34	31	84	78	34	20	84	58	34	91	84	21
35	40	85	86	35	29	85	67	35	·70200	85	29
36	49	86	95	36	36	86	75	36	09	86	38
37	58	87	·68904	37	46	87	84	37	17	87	46
38	67	88	13	38	55	88	93	38	26	88	55
39	76	89	22	39	64	89	·69801	39	34	89	63
40	85	90	31	40	73	90	10	40	43	90	72
41	94	91	40	41	81	91	19	41	52	91	80
42	·68502	92	49	42	90	92	27	42	60	92	89
43	11	93	58	43	99	93	36	43	69	93	97
44	20	94	66	44	·69408	94	45	44	78	94	·70706
45	29	95	75	45	17	95	54	45	86	95	14
46	38	96	84	46	25	96	62	46	95	96	23
47	47	97	93	47	34	97	71	47	·70303	97	31
48	56	98	·69002	48	43	98	80	48	12	98	40
49	65	99	11	49	52	99	88	49	21	99	48

Form of a Foreign Bill of Exchange, drawn in the Money of the Country where payable.

F.

[2]*London*, 10*th July*, 1826. [6]B[co.] : ℔ 3000 12

[1] [3]Two and a half months after date, [4]pay [4a]this first of exchange (second and third unpaid) [5]to the order of Messrs. James & Co. [6]Three thousand marks twelve schillings banco, [7]value of the same, [8]which place to account, [9]as advised.

[10]J. & G. PLUME.

[11]Messrs. Roll & Co.
Hamburgh.
1st.

Forms of Acceptances.

G.

Lisbon, 17*th June*, 1826. £620 0 0 stg.

Sixty days after sight, pay this first of exchange (second and third not paid), to the order of Messrs. Cintra & Co. Six hundred and twenty pounds sterling, value of Messrs. Dacosta & Co., which place to account of S. R., as advised.

GME. BARBOZA.

Messrs. Williams & Son,
London.
1st.

No. 25.
Accepted 15th July,
Williams & Son.

H.

£360 15 0 *Liverpool, 3d September*, 1826.

Three months after date, pay to Messrs. Drouet & Co. Three hundred and sixty pounds fifteen shillings, value received, which place to account, as advised.

S. & I. BARBER.

Messrs. Cox & King,
London.

No. 304.
Accepted.
Payable at Messrs. Coutts & Co.
Cox & King.

Forms of Indorsements.

I.

Pay to Messrs. Cox & Co., or order, value of the same.
Hamburgh, ut retro.
Js. Platz.

Pay to the order of Mr. J. Jump, value in account with Messrs. Brückner.
Leipzig, 15th Oct. 1826.
Cox & Co.

Pay to Messrs. Brown & Parr, or order, value of J. Row, Esq.
Leipzig, ut supra.
J. Jump.

Pay to Messrs. G. & J. White, or order, value in account.
Paris, 3d Nov. 1826.
Brown & Parr.

G. & J. White.

1. *Of the Stamp.*

Every bill of exchange must be drawn upon a stamp, of the value fixed by law.

In foreign bills of exchange, every part of a set must have a stamp of equal value. A foreign bill drawn singly, and not in a set, is liable to the same stamp as an inland bill of like amount and tenor.

The following are the stamps at present established by law.

On Foreign Bills of Exchange.

	s.	d.
Where the sum shall not exceed . . . £100	1	6
If above £100 and not exceeding . . 200	3	0
200..... 500	4	0
500..... 1000	5	0
1000..... 2000	7	6
2000..... 3000	10	0
3000.....	15	0

On Inland Bills and Notes, payable after date.

				Not exceeding Two Months.			Above Two Months.		
If £2	0...	and not exceeding	...£5 5	£0	1	0	£0	1	6
Above..5	5.....		20 0	0	1	6	0	2	0
20	0.....		30 0	0	2	0	0	2	6
30	0.....		50 0	0	2	6	0	3	6
50	0.....		100 0	0	3	6	0	4	6
100	0.....		200 0	0	4	6	0	5	0
200	0.....		300 0	0	5	0	0	6	0
300	0.....		500 0	0	6	0	0	8	6
500	0.....		1000 0	0	8	6	0	12	6
1000	0.....		2000 0	0	12	6	0	15	0
2000	0.....		3000 0	0	15	0	1	5	0
3000	0.....		 0	1	5	0	1	10	0

The alteration of a bill in a material part, as the date, sum, term, or the insertion of words rendering it negotiable, not having been so previously, or in the consideration—after it has been once issued, will make

a new stamp necessary, even if such alteration be made with the consent of all the parties: but if the alteration be only to make the bill what it was originally intended to have been, then a new stamp will not be necessary.

The paper on which a bill is to be drawn must be stamped before it is written:—without this, a bill is not only unavailable in a court of law, but any person making, signing, or issuing it, or causing it to be made, signed, or issued,—or accepting or paying it, or causing it to be accepted or paid, will incur a penalty of £50.

A bill may now be drawn upon a stamp of a proper kind (*i. e.* a bill stamp) of greater value than that required by law, and also on a stamp of a different kind, provided it be of proper value, and not specially appropriated to some other instrument, by having its name on the face thereof.

A bill, although formerly it might have been stamped at any time, on paying a penalty, ought not now to be stamped after it is issued.

Forging a bill on unstamped paper, with intent to defraud, is equally an offence in law as if forged on a proper stamp.

A foreign bill, if drawn abroad, though completed in Great Britain, as where the payee's name was left blank and subsequently filled in, does not require a British stamp.

Bills payable on demand are exempt from the stamp duty; but not so when drawn payable at sight.

The British courts of law, in actions brought in them upon foreign bills of exchange, do not regard the revenue laws of a foreign independent state, nor

therefore inquire whether the bill sued upon have been drawn on a stamp conformable to such laws; but they do recognise such laws, when drawn from any part of the King's dominions abroad, as Jamaica, &c.

2. *Of the Date and Place when and whence drawn.*

The name of the place where, and the day, month, and year when a bill is drawn, should be distinctly written on the top of the bill, in either corner.

If a bill be dated forward, *i. e.* on a day not arrived, and any of the parties die before that day, such death will not invalidate the bill, as regards a *bonâ fide* holder.

If a blank be left for the date, which is afterwards filled up, the manner of filling it up will furnish no ground of objection, either to the original parties or to the person who filled it up.

A bill is not invalidated by being dated on a Sunday, Christmas-day, Good Friday, or any other holiday.

If a bill bear no date, the time of its maturity will be computed from the day it was issued; and there being no date will therefore not affect its validity.

3. *Of the Term.*

Bills are drawn payable either at a certain term "after date," "at sight," or at a certain term "after sight." When "after date," it signifies that they will become due, and are to be paid, at the expiration of the term written, commencing the computation thereof from the day on which they are dated: thus a bill drawn on the 30th June, at three months after date, will fall due on the 30th September,—and including

the three days' grace, (allowed and taken after the bill is due) on the 3d October; and if at ninety days' after date, on the 28th September, and including the three days' grace, on the 1st October,—the day on which the bill is dated not being accounted as one of the ninety. When "at sight," a bill is payable on demand, that is, immediately on being presented, without the allowance of any days' grace.* When at a certain number of months or days "after sight," the term is computed from the day of presentment;—thus a bill drawn at two months after sight, and presented on the 10th July, would fall due, including the three days' grace, on the 13th September; and if at sixty days after sight, on the 11th September.

Bills drawn payable on a fixed day are entitled to three days' grace.

Bills are sometimes drawn at one or more usances, which are fixed periods, according to the place whence drawn (as specified in another part of this work): thus the usance between London and Hamburgh is one month after date; and a bill drawn at $2\frac{1}{2}$ usances, is consequently equivalent to being drawn $2\frac{1}{2}$ months after date. When no term is mentioned, the bill is considered in this country as payable on demand.

Months are considered in bills of exchange to signify calendar, not lunar months; but half a month is always accounted as fifteen days.

All places with which we exchange compute their time as we do, according to the new style, except Russia, which adheres to the old style: thus a bill

* It was, however, the opinion of a jury of merchants, in a case before C. J. Willis, that the usual days of grace were to be allowed on bills payable at sight.

drawn from St. Petersburg, dated the 10th July, at one month after date, would not fall due until the 22d August; and, including the days of grace, until the 25th August.

When a bill is drawn payable after date, from a place using the old style, upon a place using the new style, the time is to be computed according to the old style; but if at a time after sight, according to the new style, and *vice versâ*, when drawn from a place using the new style, upon a place using the old style.

3.* *Of the different Parts of a Set of Bills.*

It is usual, in drawing foreign bills of exchange, to furnish one or more duplicates thereof, which are accordingly called seconds, thirds, and so on, (the original bill being called the first); and the whole of these together are called a set.

Any part of such set having been accepted or paid, the remainder are unavailable, except for the purposes which will be adverted to hereafter; and each part must contain a condition that it shall be payable only so long as all the others remain unpaid: in other respects, every part of a set must be of the same tenor. This condition is generally expressed thus: — When a second, "first and third unpaid." When a third, "first and second unpaid." When a first, "second and third unpaid." And so on, in words to the above effect: sometimes more at length, as "first and second of same tenor and date being unpaid."

The object of having these duplicates is, that if one be lost or miscarry, another may be available;

or in case the drawer or payee wish to send the first forward, to procure a speedy acceptance to it,—reserving the remainder for subsequent negotiation, as will be more fully explained hereafter.

The forgery of an indorsement of the payee on one of the parts of a set, will not convey an interest therein, even to a *bonâ fide* holder; and the real payee may recover on another part of the set.

4. *Of the Order or Payee.*

This is expressed in one of the two following manners:—

"Pay to A. B., or order;" or "Pay to the order of A. B."

Sometimes a bill is drawn simply to order, without naming any payee—thus:

"Pay to my order;" or, "Pay to our order;" or, "Pay to the order of myself;" or, "Pay to the order of ourselves"—in which cases the bill is considered as payable to whomsoever the drawer may subsequently direct, or to whom he may transfer his right therein. See *Indorsement*.

There are various reasons why a person may draw a bill to his own order: among others, it may happen that when he has occasion to draw, there are no takers or buyers of bills; and still it may be necessary, or at least desirable, not to delay drawing, either to fix the course of exchange, as between the drawer and the drawee, or parties for whose account the bill is drawn, when drawn for third account (*i. e.* for account of another party than the drawer or drawee)—or to obtain the drawee's acceptance without delay; or the drawer may expect

to dispose of, or negotiate it, subsequently, at a more favourable rate, or course of exchange, than that at which it is drawn; but this is not to be recommended, for it may give rise to a suspicion, that, having taken the bill himself in the first instance, he drew it at a less favourable rate, for the party for whose account it was drawn, than he would have been willing to accept, or might have obtained, from another.

A bill may now be drawn payable to a certain person absolutely, without inserting the words " or order," or " or bearer;" but our courts of law held formerly that one or other of these forms was essential.

The order must not be expressed as payable to more than one party or order, leaving it undetermined who may eventually become the receiving or assigning payee: thus a bill drawn payable " to J. P. D., or to J. C. B. & Co., or to his or their order," was recently decided in our courts of law as a bill that could not be sued upon.

A bill of exchange may also be drawn payable to bearer, or to N. B., or bearer, in which case it is transferable by delivery only, and requires no indorsement; the insertion of a name preceding the words " or bearer," being in effect a mere nullity.

6. *Of the Amount.*

The amount is usually written in figures on the top corner of the bill, for a more ready reference; and again in the body of the bill in words, to render any alteration in this most important and material point more difficult.

Negotiable bills or notes, made in England, for less than 20*s*. are void; and when for 20*s*. and less than

£5. they are also void, conformably with certain regulations specified in the acts 17 Geo. 3. c. xxx. s. 1. and 27 Geo. 3. c. xvi.; and persons issuing or negotiating them are liable to a penalty.

The amount must be specific and determinate, not contingent, nor partly determinate and partly contingent.

If there be a difference between the amount expressed in figures on the top, and that written in words in the body of the bill, the latter will be considered, *primâ facie*, as the correct sum.

6.* *Of the Course or Rate of Exchange.*

The rate or course of exchange is usually placed in figures, after the amount of the bill in figures, on the top corner, also for a more ready reference, and repeated in the body of the bill in words, after the amount in words, likewise, to prevent alteration: the form of expression is either, "at the exchange of twenty-five francs and twenty centimes per £ stg.;" or more simply and usually, "at twenty-five francs twenty centimes per £ stg." The rate of exchange so expressed determines the amount of foreign money to be paid for the bill at the place on which it is drawn; for, any difference of exchange arising out of a subsequent negotiation must be settled between the buyer and seller of the bill, and does not affect the drawer or drawee in their relations as such to each other:—thus, if A in London draw a bill upon B in Paris, to the order of C, for £1000, at the exchange of 25 francs and 20 centimes per £ stg., B will have to pay 25,200 francs in discharge of such bill; but if C subsequently negotiate it to D at 25 francs per £ stg., D would only be entitled to receive 25,000 francs for it; but as

the amount of the bill cannot be altered, he will receive 25,200 francs for it, and must consequently pay C for those 25,200 francs at the rate of £1 stg. for every 25 francs, the sum of £1008 stg., so that C will have gained by the transaction £8 stg.—If, however, the rate of exchange had subsequently risen instead of falling,— for instance, to 25 francs and 50 centimes, and C had negotiated it thereat, —then D would have had to pay for the 25,200 francs at that rate only £988. 4*s*. 8*d*. stg., in which case C would have lost £11. 15*s*. 4*d*.

Bills are sometimes drawn upon places abroad at once in the money payable in such places, as in form F, when there is no occasion to express the rate of exchange upon the bill; and if negotiated in England (for it may at once be remitted to a place abroad), the seller sends a note of the sterling amount to the buyer, calculated at the course of exchange agreed upon.

It is customary, when bills that have been negotiated are delivered to the taker, to pin a ticket to them, containing the principal points of the contract written thereon—as the amount, the place drawn upon, the term, the course, the name of the taker, the day when he is to pay for it (which is usually the post-day following that on which it was sold), and the name of the seller: thus,

£1000 Paris, 3 M°. d^{t}. @ 25f. 20.

A. B. SMITHGOLD, Esq.

For Tuesday, 25th June.

From T. G. FATELY & Co.

If the bill were subsequently negotiated, as before supposed, at an exchange differing from that at which it was drawn, the form of the ticket would be this:—

25,200 fcs. on Paris, 3 M°. d^t.

@ 25f. 20 = £1008 0 0

A. B. SMITHGOLD, Esq.

For Tuesday, 25th June.

From S. G. FATELY and Co.

which form would also be proper, if the bill were at once drawn in foreign money.

It has been held, that a foreign bill, drawn at sight in foreign money, without the rate of exchange being fixed, must be paid according to the exchange of the day when the bill was presented for payment.

7. *Of the Consideration.*

If the consideration given by the order or payee for the bill be money, then it must be expressed thus: "value received of the same;" or, "value of the same." It being, as already observed, not customary for the taker of the bill to pay for it immediately on delivery, but on the succeeding post-day, it may be better to use the latter mode of expression: the seller of a bill, however, has the right to demand payment for it in cash or bank notes on delivery, which is only done when the taker is unknown, or of questionable responsibility; and this is then very proper, for the bill once sent abroad, can but very seldom be recalled.

If the order or payee is not to pay for it, but only to pass it to the credit in account with the drawer, then the consideration must be expressed thus: "value in account." If the order or payee have to pass the amount of the bill to the credit of a third party, then it is usual to insert the initial letters of such party in the expression of consideration, thus, "value in account with S. & B." Sometimes the buyer of a bill takes it for account of a third party; and if he does not intend to guarantee its validity, he then directs it to be drawn to the order of such party for whose account he takes it, and the consideration to be expressed as received of him, thus, "pay to the order of R. M.," and "value of Messrs. G. & O.;" the former is called the order, the latter the value:— if he intend to guarantee the bill, then he will take it to his own order, and indorse it over to R. M.

When, as before remarked, the drawer of a bill makes it payable to himself or to his order, the right and power of disposing of its value are evidently vested in himself, and the consideration must, in such case, be expressed thus, "value in myself:" when the bill is drawn by a partnership, thus, "value in ourselves."

These several modes of expressing the consideration, are equally applicable when the payee assigns payment to another by indorsement.

It is, however, now decided by our courts of law, that it is not essential to the validity of a bill for the consideration to be expressed: it was formerly doubted whether a bill must not import to be for value received.

For further information touching the consideration, see remarks under the head *Of the Holder*.

8. *Of the Account to be Debited by the Drawee for Payment of the Bill.*

If a bill be drawn for account of the drawer, and he have but one general account with the drawee, then the expression should be thus, "which place to account." If, however, there are different accounts running between them, then the initial letters of the particular account for which the bill is drawn should be inserted,—so, if for account of goods bought; thus: "which place to account, $^{G}/_{A}$;" or, if for exchange operations, "which place to account, $^{E}/_{A}$:" and when drawn for account of a third party, then the initial letters of such party should be inserted thus, "which place to account of S. & L." These distinctions, although very proper and usual, need not, however, absolutely appear on the face of the bill; but must be particularly noticed in the letter advising the bill having been drawn (commonly called the letter of advice), and then the expression may be general; thus, "which place to account, as advised;" or, "which place to account, as per advice."

9. *Of the Notice of Advice.*

This is expressed either "as advised;" or, "as per advice." Bills are sometimes drawn without being immediately advised,—which is, when avoidable, however, a bad practice,—and then this part of the bill must be expressed thus, "without advice;" or, "with or without advice."—See more about "advice," under the head of *Drawee*.

10. *Of the Signature.*

The signature must be that of the drawer, or of some person duly authorised to sign for him—(the body, that is, the other parts of a bill, may be written by any person); and when drawn by a firm, it should be signed, in preference, by the partner who generally signs and indorses the bills of the house: he should also sign the letter of advice, to afford the drawee better opportunity for determining upon the genuineness of the signature, when the bill is presented to him.—See head, *Drawer*.

11. *Of the Address of the Drawee.*

The name of the party on whom the bill is drawn, and the place where he lives, must be correctly and distinctly written—(better if in a rather larger character than the body of the bill).—When the drawee is generally known in the mercantile world, it will suffice to name the town in which he resides; if otherwise, it will be well to add a more particular description of abode, as the street, &c.

When a bill is drawn upon a minor place, it is generally made payable in the capital (termed also domiciliated), and expressed thus:

MESSRS. JOHN JONES & Co.
LIVERPOOL.
Payable in
LONDON.

See the heads *Drawee* and *Holder*.

12. *Of the Acceptance.*

The acceptance is sometimes written across the bill, as in form G; sometimes at the foot of it, as in form H. It is frequently written in a different coloured ink to that in which the bill itself is written. For various particulars connected with the acceptance, see the heads, *Drawee* and *Acceptor*.

13. *Of the Indorsement.*

Bills of exchange, whether made payable to order or to bearer, are negotiable, and may be transferred from one person to another, *ad infinitum:* in the latter case, a mere delivery is sufficient; in the former, the payee must assign his right in writing on the bill, and sign such assignment, which is called an indorsement. —See *Forms of Indorsements*, p. 7.

The indorsement must have the name of the new payee or indorsee correctly and distinctly written, with the expression of consideration; and it should be dated, although this is frequently omitted.

Indorsements are either special or blank. A special indorsement, or an indorsement in full, is, when the name of the new payee is inserted, as in the four first indorsements, in forms, p. 7.

A blank indorsement, is when a party merely affixes his signature at the back of a bill, as in the last indorsement, in forms, p. 7: a person can also indorse a bill in blank, without having been previously a payee, and is equally responsible. Although in an indorsement the words "or order," or, "or bearer," be omitted; still, if originally transferable, the indorsee will nevertheless have a right to negotiate and transfer it.

The payee or indorsee may, however, make a restrictive indorsement, as, "to A B, for my use only," &c.

A bill originally payable "to order," becomes, by a blank indorsement, payable "to bearer."

THE SEVERAL PARTIES TO A BILL OF EXCHANGE ARE THE FOLLOWING:—

The DRAWER, or person who makes or draws the bill.

The ORDER or PAYEE, or person to whom or to whose order the bill is to be paid.

The DRAWEE, or person on whom the bill is drawn, or who has to pay the amount of the bill, and who, when he has accepted it—that is, has undertaken, in writing thereon, to pay it when due—is also called the ACCEPTOR.

The INDORSER, or payee, who transfers his right to receive payment of the bill to another.

The INDORSEE, or person to whom the indorser transfers the right of receiving or assigning payment of the bill.

The HOLDER, or the last payee or indorsee, and who has to receive payment of the bill at maturity—that is, when it becomes or falls due.

OF THE DUTIES AND LIABILITIES OF THE SEVERAL PARTIES TO A BILL OF EXCHANGE.

Of the Drawer.

The drawer of a bill of exchange, whether for his own account, or for that of another party, is considered

as having undertaken to the payee, and to every person to whom the right of receiving the bill may be subsequently transferred,—that if the bill be duly presented to the drawee, he will accept it in writing, and pay it when due; or that, in default thereof, the drawer will pay the same, or provide payment thereof, together with all charges,—as noting and protest charges, postages, and re-exchange and commissions, if any, incurred by such default of the drawee.

The liability of the drawer is established so soon as he delivers it to the payee.

The drawer is also bound to the acceptor in the amount of the bill, should the latter not have effects of his in hand when the bill falls due.

The drawer is supposed either to have the amount of the bill which he draws due to him from the drawee, or to know that the latter will be willing to give him credit for the amount: this when the bill is not drawn for third account.

When the bill is drawn for account of a third party, the drawer should previously ascertain from the drawee whether he will accept, or at any rate give instructions to some one of his correspondents, in the place on which the bill is drawn, to accept the bill for his account, in case the drawee do not, (which is called "interfering for honour") which instructions may be conveyed by placing what is called "a case of need" on the bottom of the front of the bill, thus: "In case of need, apply to A B;" or, "if need, with A B." The drawer should be careful to advise the drawee, by the regular mail, as also by any other conveyance by which he may know any part of the set of the bill has been sent—(this latter mode is,

however, not obligatory)—of the bill having been drawn, stating the full particulars thereof—viz.

The amount.
The date.
The term.
The order.

The account for which drawn; and, when a foreign bill, also,

The rate of exchange.

The drawer of a bill must see that it be drawn upon the requisite stamp.

Before signing a bill, the drawer should see that it has its bill-book number written upon it, to ascertain that it has been duly entered into such bill-book, as in form L.

The drawer of a bill should never sign it before the contents be filled in, for if he do so, he will be liable for any tenor which the bill may subsequently receive, so far as the stamp will admit of,—the same as if he had signed it after the tenor had been inserted.

The person who signs a bill is presumed to be the *bonâ fide* drawer thereof, and as such, liable, although he may have drawn it in the capacity of an agent, administrator, trustee, or executor,—unless he use words in so doing clearly indicating such agency, thus:

JOHN KING, as Agent to the London Gas Company.	WM. WHITING, as Trustee to the Estate of Messrs. J. C. & R. & Co.

Of the Payee or Order.

The payee, when the bill is delivered to him, should examine it carefully, to see whether it be drawn on a proper stamp, and in terms conformable to the conditions on which he contracted to take it,—

principally with regard to the term of payment,—the amount, the rate of exchange, and also that his name or firm be correctly written in the bill. He should then have the bill regularly entered into his bill-book, kept for that purpose, and have the number marked upon it, to shew that it has been so entered, as in form M.

If the bill be drawn payable at a certain period after sight,—that is, after it shall have been presented for acceptance at the place of business of the drawee,—the payee must send it for acceptance by the first regular mail, or by any earlier conveyance; for by any delay in the presentment, the term of payment will be delayed also. It is also advisable, when the bill is drawn payable at a certain period after date, to send it forward for acceptance without delay; for the drawee may, if the presentment be protracted, from circumstances that have meanwhile occurred, be induced to refuse acceptance,—as, for instance, if the drawer has subsequently become his debtor, or be no longer entitled to credit, or otherwise.

If the payee be desirous of keeping the bill, with a view of subsequently negotiating it, he will do well to send forward the first part of the set to some correspondent in the place on which it is drawn, to procure acceptance thereto, with directions to hold it at the disposal of the second,—that is, to deliver it up, accepted, to the person who shall present to him the second for that purpose: when the payee negotiates the bill, he delivers the second of the set to the person who buys it, writing at the bottom in front of the bill,—"first in hands of N. N.;"—and if he wish to provide it with "a case of need," in the event of the

bill not being duly accepted or paid, the double reference may be expressed thus:—"first in hands of N. N., to whom in case of need."

The payee, when he indorses the bill to another, makes himself liable to such new payee, and to every subsequent one, for the payment of the bill, to the same extent as the drawer is liable to him.—For further duties, &c. see the heads *Indorser* and *Holder*.

Of the Drawee and Acceptor.

The drawee of a bill is not any ways liable for it, until, by an act of his own, or of his agent, he has made himself so.

On receiving advice of a bill having been drawn upon him, he should at once enter the particulars thereof into his bill-book, in the manner of form N., that when presented, he may see whether it be conformable to the advice; and such entry should be made, even though at the time he be doubtful that when presented he shall accept it; for such entry will not involve any liability, and will serve at any time as a memorandum of reference.

When a bill is presented for acceptance, the drawee must satisfy himself that the signature of the drawer be genuine, and the bill in all respects conformable to the advice; for when he has once accepted, he is precluded from objecting to the payment.

When the drawee accepts a bill, he should at the same time affix the bill-book number thereto, prior to signing the acceptance, which habit will ensure its having been regularly entered,—and also to mark

in such book the day when accepted, so as to prevent an acceptance of two parts of the same set of bills;—he should also insert in the bill-book, the name, and, when a stranger, also the address of the person to whom he delivers the bill. A person demanding a bill left for acceptance, should always be asked the amount, his number on the bill, and in whose hands it is; for unless he can furnish such particulars, it may be fairly doubted whether he have any right to claim it.

The drawee may accept or pay a bill without having received advice thereof, provided it do not bear the words "as per advice," or, "as advised," or the like; and the drawer will be liable to him for such acceptance or payment.

It is usual in London for a drawee to accept his bills payable at a banker's,—and the Bank of England will not discount any bills that are not so made payable: when a bill is made payable at a banker's, it is customary to present it there for payment, in the first instance; but as, by a late decision in our courts of law, a holder of a bill is not bound so to present it, he being at liberty to demand payment at maturity, at the acceptor's residence, or place of business,—if it be important to him that it should be paid at his banker's, he must then, in his acceptance, insert the words "payable at the banker's only"—thus:

N°. 25. ACCEPTED,

Payable at Messrs. Jones, Loyd, & Co.'s only.

JOHN POTT.

which being a conditional acceptance, the holder will be bound so to present it.

When a bill is drawn payable after sight, the acceptance must bear the date when it was left for acceptance,—as from that day the term at which it is drawn commences;—thus, if a bill payable at sixty days' sight were left on the 6th June, the form of acceptance would be as follows:

N°. 217. ACCEPTED 6th June,
Payable 5/8 *Aug. at Messrs. Martin & Co.'s.*
CHAS. GRAY & Co.

The insertion of the day when due is not absolutely necessary; but is desirable, as a check upon the banker's accuracy, when the bill is presented for payment.

If a bill be drawn payable at a certain term after date, it is neither usual nor necessary to date the acceptance,—as in such case the date of the bill determines its maturity; but for the reason above stated, it will be well to mark the day when due, either in the acceptance or at the top, on the face of the bill.

An acceptor must be careful that he be provided, in due time, to discharge his acceptance immediately on presentment; for his credit may suffer by any hesitation or delay.

Before paying a bill, the acceptor, or whomsoever he may have directed to pay it, must see that it is in every respect regularly indorsed in succession, from the original payee to the last indorsee or holder, and that the names of the several payees correspond exactly with their signatures;—for in case of any error or neglect in these respects, he may be called upon to make a second payment.

An acceptance must not be paid to a bankrupt or

insolvent; but to his assignees or trustees, if his bankruptcy or insolvency be known to the acceptor.*

Mr. Justice Bayley says, that a bill must not be paid before it is due; but it is presumed that this must refer to an unaccepted bill, as otherwise the frequent practice of persons discounting their own acceptances would be unsafe; at any rate, the bill when paid must bear the mark of such payment by being receipted, or the acceptance being crossed out; or, as is customary, both;—for if the bill get into circulation again, without such indications of its having been paid, an indorsement afterwards, before the time it would have become due, will give the indorsee, if he take it *bonâ fide*, and give a valuable consideration for it, the same right as if there had not been any such premature payment.

The several liabilities of a drawee may be sufficiently gathered from the foregoing and following considerations.

An acceptance is an undertaking to pay a bill according to the tenor of the acceptance.

Acceptances may be either general and absolute, or conditional.

A general and absolute acceptance is an undertaking to pay according to the tenor of the bill, at all events, and under any circumstances, when nothing is stated in such acceptance to the contrary.

A conditional acceptance is an undertaking to pay according to the terms expressed in such acceptance; as, for instance:—"accepted, to be paid when remitted for;" or, "accepted, payable on the arrival of

* The publication of a bankrupt's or insolvent's name in the London Gazette is deemed a sufficient notification to every body.

a cargo of wool, by the ship George, Capt. Smith, from Hamburg;" or, "accepted, payable when a bill (to be specified) shall have been paid:" but when the conditions therein specified shall have been performed, then the acceptance becomes absolute.

An acceptance may also further vary from the tenor of the bill, as undertaking to pay a less sum, or at a different period than expressed in the bill,—and in such case the acceptor is only bound to the extent of his acceptance.

How far the payee or holder is to be satisfied with such qualified acceptances, will be shewn when his duties and liabilities are considered.

A bill may be accepted after it has become due, and is then to be considered as payable on demand.

If a drawee deliver up a bill, after having written the words "seen," or "accepted," or the like, or with a direction to a third party to pay it, upon it,—such will amount to an acceptance, although he may not have affixed his signature thereto; but such writing by any other person than the drawee, will not bind him, unless it have his signature.

It was formerly held in our courts of law, that such writing, if even by mistake, and erased prior to the delivery of the bill, would still amount to an acceptance; but it has been since decided, that even a formal acceptance duly signed, being erased prior to the delivery of the bill, will effectually cancel and render of no use such acceptance.

A verbal assurance that a bill will be accepted, as, "leave the bill, and it shall be accepted;" or, "send it to my office, and it shall be accepted," binds such drawee to accept; but if, in returning a bill that had

been left for acceptance, the drawee say—"there is your bill, all is right,"—that does not amount to an acceptance.

A promise to accept an existing bill is binding, provided such promise induce any party to take or retain the bill.

A promise in writing, that a bill then drawn "shall meet with due honour," is equivalent to an acceptance.

Mr. Justice Bayley doubts whether, in any case, a promise to accept a bill, not then drawn, would be binding; but I think it would, and more especially a written one, as, "I note your intention to draw upon me, and your bill will be duly honoured:"* but such promise should be explicit and unequivocal,—thus, the expressions "I have duly noted your having drawn upon me," or, "Your drafts shall have attention," would not amount to an acceptance.

It is not honourable to use such equivocal terms; and in a case where A was desired by B to draw upon C, and A communicated such intention to C, the latter replied: "That he had received his letter, and noted his intention of drawing;" but on the drafts of A being presented, refused to accept: A brought his action, but the court directed the jury to find for the defendant, remarking, however, that although he had the verdict, the duplicity of his conduct was very discreditable to him, and the more so, as he ranked among the most eminent merchants on the Royal Exchange.

If an acceptance be altered in any material part, it becomes vacated.

* At any rate, the party may be sued specially for the breach of his engagement.

An acceptance once delivered cannot be revoked.

If an acceptance be lost or stolen, and the acceptor receive notice thereof, it being indorsed in blank, and consequently payable to bearer, he must not pay it to a person who has not taken it *bonâ fide*, or paid value for it; or he may be made to pay the amount again to the loser.

Acceptances are sometimes said to be "for honour;" thus, if the drawee refuse to accept a bill, it may be accepted by another party for honour, and account of the drawer, or any indorser; but such party must have the bill duly protested by a public notary, and have a declaration added to the protest for non-acceptance, stating his willingness to accept, specifying the name of the party for whom he interferes; and such declaration is termed an "act of honour."—See form *Q*.

A drawee may also accept for honour, if he do so for an account different to that for which the bill was drawn; thus, it may be drawn for account of a third party, and he may accept it for account of the drawer, or of any indorser; but he must have the bill duly protested, and an act of honour made out, as already directed.

The form of such acceptances is usually as follows: "Accepted supra protest, for honour and account of A B, payable, if duly presented, when due."

Such an acceptance is considered to be for the amount of the bill, and also for the charges of the protest; which charges are marked upon the bill by the notary, when protested, and prior to the acceptance.

A person accepting for honour, must advise the party for whose account he interferes, and transmit

him the protest by the first regular mail, and in duplicate by another conveyance is desirable, if he reside at a very distant place, as beyond the Atlantic, &c. that he may demand security from the parties against whom he has recourse.

An acceptor for honour is entitled to a commission, usually a half per cent;*—the protest charges and postages, all of which he will include in the amount of his draft, when taking his reimbursement at maturity of the bill, and of which he will then transmit an account of such commission and charges: even if he should be indebted to the party for whose account he interfered, he should draw upon him the amount of the bill, together with the charges, exactly, or, as it is termed, "per appoint," in order to fix the amount which the latter is to recover from the parties against whom he has recourse.

A bill is also sometimes accepted for honour by another person than the drawee, when the latter may have accepted, and subsequently absconded, or become notoriously insolvent: protests, &c. will be equally necessary here as in the preceding cases, but are then called "protests for better security."

A person who accepts for honour is only liable if the original drawee do not pay; and the bill must therefore, in the first instance, be presented to him for payment at maturity, when practicable.

An acceptor for honour has recourse against the party for whose account he accepts, and against all others who are liable to such party: thus, if a bill have three indorsers, and a person accept for honour of the last, he has recourse against all three, as also against

* When from distant parts, as Brazil, Buenos Ayres, &c., 1 per cent.

the drawer; but if he accept for honour of the first indorser, he has no recourse against the two last indorsers.

After a bill has been protested for non-payment, any person may pay it "supra protest," for the honour of the drawer, or of any indorser; and may recover the amount paid, together with commission and charges, from the person for whose account he interfered, and from all the parties against whom such person has recourse.

If a bill be drawn upon several partners, an acceptance by one will bind all, though made in his name only; but if drawn on several persons not partners, an acceptance of one will only bind him, and not the others.

If an acceptance by one of several partners be a fraud on the others, or if he have no authority to bind them by accepting bills,—no person privy to such fraud, or having received notice of such want of authority, can, by virtue of such acceptance, proceed against the partnership.

Where persons are partners only in a particular and single transaction, and not general partners, they are not liable even to a *bonâ fide* holder, on a bill issued by one of them in relation to a different concern.

After the dissolution of a partnership is published in the *London Gazette*, and notified to the customers and correspondents of the firm, if one of the partners, carrying on business under the old firm, draw, accept, or indorse bills, in the name of that firm, the other partners are not liable.

A person paying a bill may now demand a receipt thereon, and he should take care that the bill be delivered up to him.

Of the Indorser.

An indorser of a bill of exchange is liable in all respects to every subsequent payee or holder thereof, in the same manner as the drawer or previous indorser, if any, was liable to him.

An indorsement should not, except under particular circumstances, be in blank, for in such case the bill becomes payable to bearer; that is, to any person into whose possession it may come, rightfully or not: whilst, if the indorsement be special, the signature of the new payee will be necessary to make the bill receivable; and thus, when stolen or lost, can only be rendered available to the thief or finder by a forging of the payee's signature.

A blank indorser is equally liable for the fate or validity of the bill with a special indorser, although sometimes he has no interest therein, and merely lends his name to give the bill greater currency.

If the first indorsement be made and left in blank, it will be so considered as against the payee, drawer, and acceptor, although the bill may have been subsequently specially indorsed: thus, if A, the original payee, indorse the bill in blank, and B indorse it specially to C, who passes it away to D, but without indorsing it, D may erase all the indorsements subsequent to the blank one of A, and recover; but any holder may make the first indorsement special, by inserting the name and order of B, that is, of the indorser subsequent to the blank indorser.

An indorsement may be made restrictively, so as to prevent further transfer — thus: "Pay to A B only," or, "Pay to A B for my use." An in-

dorsement, "Pay to S, for account of T," will not admit of S transferring it, or receiving value for it, except under circumstances that shall induce a belief that such transfer, or value received, was for the use of T; and S cannot, therefore, discount or pledge such bill for his private use or debt.

An indorsement must be for the whole amount which appears due on the bill, and not for a part thereof.

If a person who has a right to indorse a bill die, it devolves upon his representative; if he become bankrupt, it will devolve upon his assignees: but if he held it only in trust, then it will not pass to his assignees, but remain with himself.

Of the Indorsee.

The indorsee being a new payee, and if transferring the bill to another, becoming an indorser, his duties and liabilities as such, will be found under the heads of *Payee* and *Indorser*.

If an indorsee give valuable consideration for a bill, he will be entitled to recover upon it, although there may have been a previous usurious transaction thereon, provided he did not know of it when he gave the consideration: this was, however, not the case until 10th June, 1818, when it was made so by 58 Geo. 3. c. 93.

Of the Holder.

The holder of a bill should, immediately on its coming to hand, enter it into his bills-receivable book,

in the manner specified in form *O*, putting the number thereon, and then send it for acceptance: the person taking it for acceptance should note down, in a pocket memorandum-book kept for that purpose, the amount and bill-book number, to shew his authority when he subsequently calls for it, which will be the following day, twenty-four hours being considered a reasonable time for leaving a bill to be accepted.

If then acceptance be refused, the holder must send it to a notary-public, to be protested for non-acceptance (if an inland bill, simple noting will suffice, either for non-acceptance or non-payment), and send the protest, but not the bill, to the party from whom he received it, by the first regular mail; but if there appear a case of need upon the bill, he should then, before protesting, have it presented there, to ascertain if the party to whom the case of need is addressed will accept for honour of any of the parties to the bill; and if it be important to the holder that the bill should be accepted, he may, even in the absence of such case of need, apply to any persons whom he deems trustworthy, and known to him to be in correspondence with any parties to the bill, to know if they will interfere for the honour of such parties. An acceptance under either of the above cases is called accepting "supra protest," and an act of honour is added to the protest, as in form *Q*: the party so accepting receives the protest, and forwards it to the person for whose honour he interferes; but, in order not to discharge the liability of the drawer and indorsers to the holder, in case of non-payment of the bill at maturity, it may be advisable for the holder also to send a protest to the party

from whom he received it, or, at any rate, to advise the circumstance.

The holder of a bill of exchange is not bound, although the contrary has been sometimes maintained, to take an acceptance supra protest, even if the party willing to interfere be of undoubted responsibility.

If the drawee state that he cannot accept immediately, but may probably do so before the departure of the first regular mail, the holder may in the interim content himself with having the bill merely noted (*i. e.* acceptance demanded by a notary-public, but without having it protested); but must not neglect to have the protest made out in time to send by the first regular mail, should the drawee not have accepted in the meanwhile.

Inland bills require only to be noted, either for non-acceptance or non-payment; but notice of such default must be promptly given to the several parties to the bill. In all cases the receiver of a bill should advise the remitter of the receipt, acceptance, or protesting, and also, in the latter case, any third person that is concerned:—all this without delay.

An acceptance to a bill subsequent to its having been noted or protested, carries with it, *i. e.* includes, the charges thereby incurred, as marked by the notary upon the face of the bill,—if the acceptance be general; and the holder may refuse to take any special acceptance that would exclude such charges.

If, after due inquiry, the drawee cannot be found, the bill must be considered as dishonoured, and protested accordingly.

A bill payable on demand, or at sight, must be put into circulation, or presented within a reasonable time,—which reasonableness must be determined by the circumstances of the case. If a bill payable at a certain time after sight be put in a course of negotiation, it is not necessary to send it by the first nor a direct opportunity for acceptance; but it must be sent within a reasonable time, which must be determined by the circumstances of the case: thus, I may take a bill on Paris, payable at a certain term after sight, and send it to Naples for negotiation.

A presentment for acceptance, except when payable after sight, is not necessary, although always desirable as regards the bill; but an agent or factor, to whom it is remitted, may be made responsible to his principal, if loss arise from default of such presentment for acceptance; and it is certainly advisable that it should be presented for acceptance so soon as received.

But although it be not generally obligatory on a receiver of a bill payable after date, to present it for acceptance, yet, if he do so present it, and fail in obtaining it, he is then bound to send a protest for non-acceptance to the party from whom he received the bill.

A bill must be presented for acceptance and payment, although the drawee may have become notoriously insolvent, or even bankrupt, and protests for non-acceptance and non-payment forwarded as usual.

The holder of a bill may, in default of acceptance or payment, sue all the parties to it, either all at the same time or successively.

An action may be brought for non-acceptance

immediately, and before the bill fall due, either against the drawer or an indorser.

When a person receives a bill to procure acceptance thereof, and when accepted, to hold the same at the disposal of the second, he must proceed precisely as if he were the payee, until by the production of the second he is called upon to deliver it; when, after examining if the second be of the same tenour and date with the first, and regularly indorsed in succession, he will write in his bill-book—(it is well to keep a distinct bill-book for this purpose)—to whom he delivers it, and erase from the second the indication where to apply for the first—thus:

"~~*First in hands of Messrs. J. & R. Cole.*~~"

If the holder of a bill alter it in any material point, it will vacate the acceptance.

When the bill falls due, the holder must duly present it for payment; and if not paid, must have it protested for non-payment,—returning the bill, together with the protest, to the party from whom he received it, and either draw upon him for the amount of the bill, together with the charges, or advise him that he has passed such amount to his debit in account: a default hereof will discharge such person from all responsibility consequent on the non-payment.

A foreign bill of exchange must be protested on the third day of grace; but an inland bill of exchange not until the day after the last day of grace; and the protests must bear date accordingly.

It is never necessary to give notice of the non-payment of an *inland* bill of exchange on the day of refusal; but with a *foreign* bill of exchange, notice of

non-payment must always be given by the first post after such refusal, even if the departure of such post be on the very day of refusal.

The presentment for payment at the place where the bill is made payable, is a sufficient presentment.

Formerly a holder was bound to present a bill for payment at the place where it was made payable; but by a late act, 1 and 2 Geo. 4. c. 78, he may insist upon receiving payment at the residence of the acceptor, or wherever he may find him: as, however, it is customary, and appears perfectly reasonable, to present the bill for payment at the place where the acceptor has made it payable,—it being a fair presumption that he has placed funds there for that purpose,—a holder should so present it, unless there be special reason to the contrary.

If a drawee accept a bill generally, without specifying any place of payment, it must be presented at his place of business, or residence, where he accepted; and if subsequently removed, the holder must endeavour to find him out.

If an acceptor make a bill payable at a particular place *only*, then the acceptance is a qualified one, and the holder must present it for payment at such place; but he may refuse to take such special acceptance.

Should the acceptor of a bill have died, the holder must endeavour to find out his executor or administrator; and if payment be refused, it must be protested.

A neglect to present a bill for payment when due, although it will discharge all other parties to the bill, will not discharge the acceptor, unless the money be

lost in consequence of such neglect,—as by the failure of the parties where the bill was made payable, and with whom funds were deposited for that purpose; but even in this latter case, I do not think that the acceptor would, since the acts 1 and 2 Geo. 4. c. 78, be discharged, unless he had accepted payable at that place only.

Bills should be presented for payment at reasonable hours, which by custom is in London considered to be from nine o'clock in the morning until four o'clock in the afternoon, and which are called bankers' hours. Lord Ellenborough held, that a bill made payable with a third party, not a banker, presented between six and seven o'clock in the evening, for the *first* time, was properly presented; yet I cannot think that a jury of merchants would so decide; for the party with whom the bill was made payable was not bound to know of it, bills being sometimes made so payable generally, without special advice of each particular bill from the acceptor; the case might be different if the acceptor had accepted generally, and consequently left it payable at his own house or place of business.

A presentment cannot be said to have been made at an unreasonable hour, even if at a banker's, provided a person be stationed there to give an answer.

A bill must be presented for payment on the third day of grace after it falls due, unless such third day be a Sunday, Good Friday, or Christmas-day, and then on the previous day.

A bill drawn from abroad, payable on a particular day, is considered as entitled to the three days' grace. A bill drawn from Russia is considered to be dated in the old style; that is, twelve days later than the new

style; thus the 3d May O.S. corresponds with the 15th May N.S., — all other countries use the same style as ourselves.

When the term of payment is expressed in months, they are to be considered as calendar, not lunar, months, — and half months as fifteen days: thus, two and half months, would be from the 5th May, on the 20th of July, and with three days' grace, the 23d July.

If a bill be payable at a certain number of days after date or after sight, the day when the bill is dated in the former case, and the day when presented in the latter, are to be excluded: thus, a bill at sixty days' date, dated the 5th July, or at sixty days' sight, and presented for acceptance on the 5th July, would fall due on the 3d September, and including the three days' grace, on the 6th of September.

The holder of a bill must not enter into any arrangement or composition short of full payment at maturity, with any party to a bill, without the consent of all the other parties, whom he will otherwise discharge from their liability thereto; but after a bill has become due, and notice of non-payment given, a holder is not bound to press the acceptor.

A holder may receive part payment from an acceptor or indorser, and protest and sue the other parties for the residue, — provided he do not give time for the payment of such residue to the acceptor or indorser.

If the acceptor of a bill of exchange become bankrupt, the holder may receive dividends thereon, without prejudice to his recourse against the other parties to the bill; but if he compound with the acceptor,

he will thereby discharge the other parties from their liabilities.

If the holder of a bill of exchange receive a check upon a banker in payment thereof, and deliver up the bill to the acceptor, he cannot afterwards recover from the other parties to the bill, should such check not be paid.

The holder of a bill of exchange may protest it, for better security, before it falls due, if the acceptor abscond, or become insolvent or bankrupt; but not against the acceptor, if the drawer or indorser be so situated: — protesting for better security is, however, optional, and a neglect to do so will not prejudice the holder's recourse against the other parties to the bill.

If the holder discharge any indorser, he thereby discharges all subsequent indorsers, but not those prior to the one discharged.

A holder may, by an action at law on an unpaid bill, recover principal and interest, and the incidental charges, as protest charges, re-exchange, postages, and the like.

Upon a foreign bill, protested for non-payment, a holder may recover from the drawer or indorser, re-exchange thereby incurred; but not from the acceptor, who is not liable for re-exchange.

If the holder of a bill receive it in payment for a debt, and at maturity he do not take the needful steps to procure payment thereof, the debt will then, notwithstanding the non-payment of such bill, be considered as discharged.

If a bill be destroyed by fire or otherwise, and satisfactory evidence can be adduced as to the particu-

lars of the bill, and of the facts of its destruction, the amount may, perhaps, be recoverable in a court of law, the same as if the bill were in being; but some doubts are entertained on this point.

If a bill be lost in such a state that any holder can recover thereon, or if it be not specially indorsed, then the holder who lost it cannot recover as if he possessed it; but if otherwise, so that he only can receive payment thereof from its being specially indorsed to him, and not subsequently indorsed by him, then he may, perhaps, be able to recover the same as though he held it; but it is doubtful.

The holder of a bill of exchange should, in case of loss, immediately give notice thereof to the acceptor, and to all the parties thereto; and when the bill is payable to bearer, or indorsed in blank, he should advertise the loss: this will entitle him to recover the amount from any party receiving it, whom he can prove to have received such notice: he must also demand payment of a bill when due, although it may have been destroyed, and in case of it being refused, notify such refusal to all the other parties, or he will lose his recourse against them.

If one part of a set of a foreign bill of exchange be lost by the drawee, or he by mistake deliver it to a wrong person, or if, from any other cause, the holder cannot obtain it from the drawee, accepted or unaccepted, the latter must give to the holder, or to his order, a promissory note, for the payment of the amount of the bill on the day it would have become due; and if he refuse to give such note, the holder must immediately protest for non-acceptance, and when due

demand payment, although he have neither bill nor note; and if not paid, protest for non-payment.

In all cases, if a bill of exchange be lost, a protest may be made on a copy.

If the holder of an inland bill of exchange lose it before it falls due, he may demand a new one from the drawer,—(the equity of the law seems also to comprehend indorsements,)—upon giving satisfactory security to indemnify, should the lost bill appear.

A holder of a bill may prove it under a commission of bankruptcy, in any case where, in a court of law or equity, he could, but for such commission of bankruptcy, have compelled payment; and he may prove it although not due.

If the holder of a bill have not given consideration for it, he cannot compel payment; but if he have given consideration for part of the amount, he may compel payment to the extent of such consideration.

The right of a *bonâ fide* holder in a bill of exchange may be considered, generally, as unimpaired by any previous transaction thereon, as usury, illegal consideration, &c. provided he shall not have been privy to, or known of it, when he acquired such right.

A bill of exchange is affected by the statute of limitations, and must be sued for within six years after it became payable.

On the death of the holder of a bill of exchange, his right therein becomes vested in his administrator or executor.

If a bill be accepted by an agent of the drawee, as by his procuration, and not by the drawee himself,

the holder has a right to demand to see the authority for such acceptance; and in case of refusal, to consider the bill as dishonoured, and to act accordingly.

A *bonâ fide* holder of a bill of exchange can recover from an acceptor, although the drawer's name may prove to be a forgery; and also if the acceptance be forged, if the drawee have previously admitted it to be genuine.

If a bill of exchange, transferable by indorsement, be delivered without being indorsed, the holder must still present it for payment when due; and if not paid, protest for non-payment.

It is said that if a bill be made payable to a certain person, and not to order or bearer, therefore not negotiable, that such party must appear in person to demand payment.

P.

Form of a Protest.

On this day, the seventh of April, one thousand eight hundred and twenty-six, at the request of Mr. Isaac Short, of this city, merchant, bearer of the first bill of exchange, whereof a true copy is on the other side written, I, Edward Rumble, of London, notary-public, by royal authority duly admitted and sworn, exhibited the said first bill of exchange to a clerk in the counting-house of Messrs. James and Thomas Gad, of Broad Street, on whom the same is drawn, and demanded acceptance thereof, (when due, it will be " payment thereof," instead of " acceptance thereof"); to which he answered, that the said bill would not be accepted (or " not be paid," if protested for non-payment).

Wherefore I, the said notary, at the request of the aforesaid, have protested; and, by these presents, do solemnly protest as well against the drawers (and indorsers, if any) of the said first bill of exchange, as all others whom it may concern for exchange, re-exchange, and all other costs, charges, damages, and interests, suffered and to be suffered for want of acceptance (when due " for want of payment") of the said bill.

Thus done and protested in London, in the presence of Charles Rulton and Henry Hutty, witnesses.

In fidem,

Protest N/A
19s.

EDW. RUMBLE, Not. Pub.

Q.

Form of an Act of Honour:

" Added to a Protest."

Afterwards, on the day and year aforesaid, before me, the said notary, and witnesses, appeared Messrs. G. C. & Co., of London, merchants, who declared they would pay the said bill — (when protested for non-acceptance, then " accept the said bill")—for honour and account of Mr. D. B., the first indorser of the said bill — holding, nevertheless, the said indorser, the drawers, the acceptors, and all others whom it may concern, in and by the said bill, responsible, always obliged to them, the said appearers, for their reimbursement.

In testimonium veritatis,

EDW. RUMBLE, Not. Pub.

THE

CAMBIST'S COMPENDIUM.

PART SECOND:

ON

OPERATIONS IN FOREIGN EXCHANGES,

AND

THE VARIOUS CALCULATIONS

CONNECTED THEREWITH.

THE

CAMBIST'S COMPENDIUM.

ON

OPERATIONS IN FOREIGN EXCHANGES,

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CONNECTED THEREWITH.

EXCHANGE, in arithmetic, signifies the giving of the money of one place or country in exchange for that of another place or country; and such exchanges are generally effected by written orders or instruments, called Bills of Exchange.

To order a sum of money to be paid, by virtue of a bill of exchange, is termed drawing.

To order a sum of money to be received, by sending such bill of exchange to another person, is termed remitting.

When an exchange is to be established between two places, the one gives a fixed quantity of its money in exchange for an unfixed quantity of the money of another place, — the amount of which latter money varies according to circumstances: the former is said to give the *certain* price, the latter the *uncertain* price: thus London gives to Amsterdam the certain price of

one pound sterling, for an uncertain or variable number of florins, or guilders, and stivers; and again, London gives to Lisbon an uncertain or variable number of pence sterling, for the certain price of a milrea, or a thousand reas.

The uncertain price is called the rate or course of exchange between the two places.

The courses of exchange between different places are subject to frequent, and sometimes very considerable, fluctuations or variations. These fluctuations are occasioned principally by the relative quantity of supply and demand of bills:—thus, if London have to remit a considerable sum of money to Hamburgh, there will necessarily be a demand for bills on the latter place; and those who have to draw, or such bills to negotiate or sell, will be able to do so on favourable terms; that is, they will agree to pay a comparatively less quantity of money in Hamburgh for the sterling money they receive in London, than if the demand for bills on Hamburgh had been less; so that in such case, the course of exchange between London and Hamburgh will fall, and be evidently against London, and, *vice versâ*, in favour of Hamburgh: whilst if London have to draw considerably on Hamburgh, or many bills are offering on the latter place for sale, the contrary will be the case.

The excess of drawing or remitting between two places, abstractedly considered, (that is, without reference to other places,) depends generally upon the relative state of trade between the two places:—thus, if London export merchandise to Hamburgh to the extent of a million of pounds sterling, and import from thence merchandise to the extent of only eight

hundred thousand pounds sterling, it is obvious that London, in order to be reimbursed for the amount of its exports, must receive two hundred thousand pounds more, either by drawing for it upon Hamburgh, or by receiving remittances from thence, whether in bills of exchange, specie, or bullion,—either of which operations would affect the course of exchange in the same manner in favour of London, and against Hamburgh,—occasioning a greater sum of Hamburgh money to be paid, in exchange for a given sum of sterling money. In the case just supposed, the balance of trade between London and Hamburgh would be said to be two hundred thousand pounds in favour of London; but as, at the same time, the balance of trade with other countries might be against London, in which case the latter would have to pay the amount thereof, so the state of the courses of exchange between London and other countries will depend upon the general balance of trade between England (of which London, in exchange operations, may be considered the general agent, as no other place in the United Kingdom exchanges direct with foreign parts,) and those countries collectively:—thus, although London might have to draw upon Hamburgh two hundred thousand pounds, yet, if it had to remit to other countries five hundred thousand pounds, the general balance would be against it, in the sum of three hundred thousand pounds.

There are, however, other causes which affect the courses of exchange: as, for instance, where one government subsidises, or lends money to another; or has to remit money abroad for the support and pay of its fleets and armies stationed in foreign parts: or, again,

if the subjects of one country furnish loans to foreign governments,—all of which having to be sent abroad—(for if drawn for from abroad, the effect will be the same)—must be taken into account, together with the state of the balance of trade, in forming an estimate of the rates of exchange.

Bills are frequently drawn on the same day at different rates of exchange, inasmuch as the demand for bills may be greater or less at different periods of exchange hours (when exchange business is transacted); or according to the degree of credit which the drawers or negotiators enjoy,—for, as the taker of a bill pays at once the amount, which he, or his agent abroad, will receive only at a subsequent time, he, during the interval, runs the risk of such money not being paid, greater or less, according to the degree of solidity of the parties to the bill.

The monies of a country may be either *real* or *imaginary*.

Real monies are coins of any kind of metal, made current by the authority of the state,—as a guinea, a louis d'or, a ducat, a Spanish dollar, &c.

Imaginary monies are chiefly used in keeping accounts and in exchange operations, as pounds, shillings, and pence, flemish, in Holland and Hamburgh; and, until the late coining of sovereigns, the pound sterling.

Agio is the difference in some countries between bank money and current money, as in Hamburgh, and formerly in Amsterdam; and also, in some cases, a premium on monies or bills.

The par of exchange between two countries is the quantity of money, either real or imaginary, of one

country which is equal in value to a certain quantity of the money of another country.

Pars of exchange may be considered as of three kinds: viz. the *intrinsic par*, or *par of coins;* the *accidental par;* and the *commercial par*.

The intrinsic par, or *par of coins*, is ascertained by a comparison of the weight, fineness, and current value of the monies of one country with those of another country:—this par may be either the gold par, the silver par, or the average par of both gold and silver.

The gold par is determined by a comparison of the gold coins of two countries; the silver par by that of their silver coins; the average par by that of both gold and silver coins:—thus, with Portugal, where, owing to the quantity of gold received from the gold mines, or rather the gold washings in Brazil, gold is more used in making payments than silver, the par is usually determined by the gold coins; with Spain, owing to the greater abundance of silver, derived from its ancient colonies in North and South America, the par is usually fixed by a comparison of the silver coins; whilst with other countries, as France, Holland, Germany, &c., where gold or silver abound alternately, according to their relative market prices, it is more usual to use the average par, although, in many tables and calculations with these countries, the silver par is referred to.

If the relative value between gold and silver coins were alike in all countries, which is, however, not the case, then the pars established by a comparison of the gold or silver coins would necessarily be alike. In Great Britain, till the 56 Geo. 3. the proportion be-

tween silver and gold was as $15\frac{1}{5}$ to 1; but the alterations then made, reduced it to about $14\frac{1}{4}$ to 1. In Spain the proportion is about $15\frac{1}{2}$ to 1; in Portugal about $13\frac{1}{2}$ to 1; and in the other countries of Europe, from $14\frac{1}{2}$ to 15 to 1. The lowest proportion that I have found quoted, is in Acheen, in Sumatra, viz. $11\frac{5}{8}$ to 1; and the highest at Calcutta, viz. $16\frac{3}{4}$ to 1.

The *accidental par* is, then, when one or both places, with which the comparison is made, exchange in imaginary monies on which the agio varies, or where a paper currency exists, the value of which is not determinate, as in Portugal, where it is subject to a greater or less rate of discount, and which variations affect the par of coins, as relating to operations in exchange.

The *commercial par* is a comparsion of the cost of a given quantity of gold or silver coin, in one country, with what it produces in another country, after deducting the charges incurred by the transit, as packages, freight, insurance, commissions, and petty charges.

Usances are certain determinate terms for the payment of bills drawn by one place upon another: thus, a bill drawn by Hamburgh upon London at usance, signifies that it will become due one month after it is dated; if at two usances, two months after it is dated; and so on.

Days of grace are a certain number of days allowed in most commercial places for the payment of a bill after it has fallen due; but in many places respectable houses do not avail themselves of such days of grace, although allowed by law.

Exchange operations are either *direct*, *indirect*, or *proportional*, termed also *arbitrated*.

Direct exchanges are as between two places having an exchange established with each other, without the intervention of a third place—as between London and Hamburgh.

Indirect exchanges are as between two places which have not an exchange mutually established with each other, and which, therefore, require the intervention of another place for a medium of exchange—as between London and Bremen; for although in Bremen there is an exchange established upon London, yet in London there is none established upon Bremen: when, therefore, the former has to draw upon, or to remit to, the latter, it can only be done from Bremen direct, or from London indirect, through the intervention of another place, with which it has an exchange established: thus, London may draw upon Hamburgh for Bremen account; or may remit a bill upon Hamburgh to Bremen, where it can be negotiated; again in Rio de Janeiro (and many other transatlantic places); the only, or at least principal, exchange established is with London—and consequently all drawings and remittings with other places, must be through its intervention.

Proportional or *arbitrated exchanges* shew the result of a comparison of the exchange between two places with each other direct, and what exchange would be produced between those two places, with the intervention of one or more other places: thus, if I know the course of exchange in London upon Lisbon, and also what it is in Paris upon Lisbon, I can calculate what course of exchange I should establish between

London and Paris, by buying in London a bill upon Lisbon, and sending it to Paris to be negotiated; by which, supposing I had to remit to Paris, I should ascertain whether it would be more advantageous for me to remit thither a bill upon Paris, or one upon Lisbon: in the same manner, if I know the exchange at Lisbon upon Paris, and had to draw upon Paris, I could determine whether it would be more advantageous to draw upon that place direct, or to draw upon Lisbon, directing my correspondent there to draw upon Paris for my account.

Calculations of Exchanges may be performed either by the rule of proportion or by the rule of equation; and these again simplified (or rather abridged) by the use of vulgar or decimal fractions or logarithms.

The rule of proportion is to be used, when there are only three terms given in a question, to find a fourth.

In reference to direct exchanges, only two cases can arise.

CASE I.

To reduce the money of a country giving the certain price, into the money of a another country giving the uncertain price.

RULE.—As the certain price given in exchange is to the course of exchange, so is the sum to be reduced, to the answer required.

EXAMPLE.—Reduce £500 into French money,

that is, into francs and centimes, at the exchange of 25 francs and 20 centimes per pound sterling:

	£		Fcs.	Cs.		£		Fcs.	
As	1	:	25	. 20	:	500	::	12600	Answer.

EXPLANATION.—Here one pound sterling is the certain price given in exchange for an uncertain number of francs and centimes; 25 francs and 20 centimes the course of exchange; £500 the sum to be reduced; and 12600 francs the answer required.

CASE II.

To reduce the money of a country giving the uncertain price, into the money of another country giving the certain price.

RULE.—As the course of exchange is to the certain price, so is the money to be reduced, to the answer required.

EXAMPLE.—Reduce 12600 francs into sterling money, at the exchange of 25 francs and 20 centimes per pound sterling.

	Fcs.	Cs.		£		Fcs.		£	
As	25	. 20	:	1		12600	:	500	Answer.

EXPLANATION.—Here 25 francs and 20 centimes is the course of exchange; one pound sterling the certain price; 12600 francs the sum to be reduced; and £500 the answer required.

In the first example, the money o the course of exchange is of the same kind as the money in which

the answer is required, both being in francs; when, however, the course of exchange is in money of a different kind to that in which the answer is required, or to the money in which accounts are kept in the country with which the exchange is being made; then first reduce the course of exchange into the same kind of money as that in which the answer is required, and proceed as before.

EXAMPLE.—What is the value of 11640 florins, or guilders, Dutch money, in sterling money, at the exchange of 39 schillings and 8 pence Flemish per pound sterling?

s. *d.*
39 . 8 Flem.
12

40)476

11 florins 18 stivers.

Fl.	St.		£		Fl.		£	*s.*	*d.*	
As 11	. 18	:	1	::	11640	:	978	3	0	stg. Answer.

EXPLANATION.—Here the course of exchange is in shillings and pence Flemish, whilst the sum to be reduced is in florins; I consequently reduce the course first into grotes Flemish, by multiplying by 12, and then again into florins, by dividing by 40, because that number of grotes Flemish are equal to one florin.

Taking for granted that the reader is conversant in working both by vulgar and decimal fractions, I proceed to explain the

RULE OF EQUATION.

By this rule we perform, by one operation or stating, what would otherwise require two or more statings and operations by the common rule of three, and is therefore seldom used, except when the question to be solved consists of more than three terms, or including the answer, more than four terms.

To State an Equation. — RULE. — Distinguish the several terms contained in the question, into what are called antecedents and consequents, — the antecedents to be placed under each other in one column, and the consequents under each other in another column, with the sign of = between each antecedent, and its corresponding or equivalent consequent.

The word antecedent signifies that which goes before, and the word consequent that which arises therefrom; it follows, therefore, that each consequent must bear a relation to, and arise out of, its immediate antecedent, — and in stating an equation, it must be of equal value with such antecedent.

Let the first antecedent be of the same kind as the last consequent, which last consequent must be that to which an antecedent — or, in other words, an answer — is required or wanting; opposite to the first antecedent place its equivalent term in the question, for the first consequent: the next, or second, antecedent must be of the same kind as the first consequent, and opposite thereto must be placed its equivalent term in the question for the second consequent; each

succeeding antecedent must be of the same kind as its immediate preceding consequent; and opposite to each antecedent must be placed its equivalent, for a consequent: in this manner proceed in placing the several terms given in the question as antecedents and consequents, until you come to a consequent of the same kind as the required antecedent; then, having written down such consequent, place in the column of antecedents a ?, for such required antecedent; and opposite thereto, in the column of consequents, place that consequent, viz., the last, to which an equivalent antecedent is required; the first antecedent and the last consequent will then be of the same kind, and the stating of the equation completed.

When there is no term in the question for a first antecedent, of the same kind as the last consequent (viz., that to which an answer is required), or for any succeeding antecedent, of the same kind as the immediate preceding consequent, such antecedent must be supplied, placing opposite thereto an equivalent consequent, until you have a consequent of the same kind as a term of the question, which is to be employed as an antecedent.

This rule will be more clearly understood after examining the worked examples, and the explanations which follow them.

To Work an Equation.—Multiply the terms in the column of consequents into each other for a dividend, and those of the column of antecedents into each other for a divisor; their quotient will be the answer required, or the antecedent sought.

To Prove an Equation. — Place the answer, or antecedent found, into the vacant place of the column of antecedents; then multiply the several antecedents into each other, and their product will be equal to that produced by multiplying the several consequents into each other, if the equation be rightly worked.

EXAMPLES. — 1st. What shall I receive in Paris for £500 sterling, at the exchange of 25 francs and 20 centimes per £ stg.?

Stating of the Equation.

£	Fcs.	Cs.
1 =	25	20
how many francs? =	500*l.*	

Working of the Equation.

$$\frac{25{\cdot}20 \times 500}{1} = 12600 \text{ francs, or Answer.}$$

Proof of the Equation.

£	Fcs.	Cs.
1 =	25	20
Francs 12600 =	500*l.*	

Working of the Proof.

$$\frac{25{\cdot}20 \times 500}{1 \times 12600} = \frac{12600}{12600}$$

EXPLANATION. — In the example just given, the last consequent to which an antecedent, or answer, is required, is £500, and the term in the question, of the same kind, is £1; therefore, according to the rule, that the first antecedent must be of the same kind as

the last consequent, £1 must be the first antecedent; and as each antecedent must have a consequent of equivalent value, though of a different kind, I look to the question, and find that 25 fcs. 20 cs. are the equivalent value of £1, therefore I place them as its consequent; and this being of the same kind as the antecedent required, I place a ? in the column of antecedents, and opposite thereto the equivalent consequent, viz. £500, to such required antecedent: I have now disposed of the several terms of the question: viz.

1*l.*
25 fcs. 20 cs.
500*l.*

and the last consequent being of the same kind as the first antecedent, viz. both in pounds sterling, I know the stating of the equation to be finished, and proceed to work it by multiplying the consequents, 25 fcs. 20 cs. and £500 into each other, and then divide their product by 1, being the only term in the column of antecedents, which gives me 12600 francs as the required antecedent or answer.

For the proof, I place the antecedent found, viz. 12600 fcs., into the vacant place in the column of antecedents, opposite to its equivalent consequent, £500; and multiplying the antecedents, 1 and 12600, into each other, obtain the same product as by multiplying the consequents, 25 fcs. 20 cs. and £500, into each other, which proves to me that the antecedent or answer found is correct.

It is evident that, in this equation, the operation is precisely the same as it would have been had the question been worked by the rule of three; for the

second and third terms of the stating, viz. 25 fcs. 20 cs. and £500, would have been multiplied together, and divided by the first term, viz. £1; and, consequently, no advantage is derived from working this example by the rule of equation: but I thought it well to commence the illustration by the most simple stating; and the advantage of this mode of calculation, over the usual one by the rule of three, will be apparent from the two following examples, and particularly so in the last, where it supplies the place of three different rule of three statements.

2d EXAMPLE.—Reduce 11640 florins, Dutch money, into sterling money, at the exchange of 39 shillings 8 grotes Flemish per £ stg.

Florins 3 = 10 shillings Flemish.
Shillings 39 8gr. = 1*l.*
How many pounds? = 11640 florins.

$$\frac{10 \times 1 \times 11640}{3 \times 39\frac{2}{3}} = \frac{10 \times 1 \times 11640}{3 \times 39{\cdot}6666} = £978\ 3s.$$

Proof.

Florins 3 = 10 shillings Flemish.
Shillings 39 8gr. = 1*l.*
£978 3*s.* = 11640 florins.

$$\frac{10 \times 1 \times 11640}{3 \times 39\frac{2}{3} \times 978\frac{3}{20}} = \frac{116400}{116400}$$

In this example the antecedent, or answer required, is pounds sterling, and its equivalent consequent 11640 florins; therefore, according to the rule, the first antecedent must be florins; but, on looking into the question, I find no other term to be in florins, the

equivalent for the £1 (or course of exchange) being in Flemish money: this antecedent, then, according to the rule, I must supply, and referring to the table of monies, under the head *Amsterdam*, &c., I find that 3 florins are equivalent to 10 shillings Flemish, which 3 florins I adopt as the first antecedent in the equation, setting opposite to it, its equivalent of 10 shillings Flemish, as the first consequent; and having now a consequent in Flemish money, I place the given term in the question of 39 shillings 8 grotes Flemish, as the next antecedent, and opposite to it, its equivalent of £1 as its consequent; the next antecedent would then, according to the rule, require to be in pounds sterling, which, however, is of the same kind as the antecedent to be found, and leaving a place in the column of antecedents blank to receive it when found (or placing the ? as before), I place opposite to such blank place the equivalent consequent of the required antecedent, viz. 11640 florins, which being of the same kind as the first antecedent in the stating, the stating is completed: the working is then proceeded in as before.

The fractional parts in an equation may be worked according to the rules of vulgar or decimal fractions, as most convenient; and as brevity is a great desideratum, the latter mode is decidedly preferable when the fractional parts can be reduced into finite decimals of few figures.

The proof is worked as before.

3d EXAMPLE.—Being indebted to Lisbon £1000, I remit to Amsterdam a bill for that amount, at 12 florins 8 stivers per £ stg.; from Amsterdam its proceeds are

remitted to Paris, at 56½ stivers for 3 francs, and thence to Lisbon at 565 rees for 3 francs; what sum will be received in rees at Lisbon for the £1000, circuitously remitted from London?

£1 = 12 fl. 8 st.
Florin 1 = 40 grotes Flemish.
Grotes Fl. 56½ = 3 francs.
Francs 3 = 565 rees.
How many rees? = 1000 pounds.

$$\frac{12{\cdot}4 \times 40 \times \cancel{3} \times \overset{10}{\cancel{565}} \times 1000}{\cancel{56{\cdot}5} \times \cancel{3}} = 4960000 \text{ rees, Answer.}$$

12·4
40
496·0
10
4960·0
1000
4960000·0

Here I ask myself, as before, what is the consequent to which an antecedent, or answer, is required; and looking to the question, I find it to be 1000 pounds sterling, therefore the first antecedent must be in pounds sterling: finding £1 to be one of the terms given, I make it the first antecedent, and place its equivalent, 12 florins 8 stivers, opposite, as the first consequent, —thus far the proportion between sterling and Dutch money: and proceeding to the further consideration of the question, I perceive that the Dutch money is to be converted into French money, and that 56½ grotes Flemish are equivalent to 3 francs; but as

my last consequent was in florins, I must supply a consequent in grotes Flemish as an antecedent in the equation; and therefore referring, as in the 2d example, to the table of monies under Amsterdam, I find that 1 florin contains 40 grotes Flemish, of which proportion I avail myself, as shewn in the stating, which leaves me a consequent in grotes Flemish, and enables me to place, as the next antecedent, the given term in the question of 56½ grotes Flemish, opposite to which I put its equivalent, 3 francs, for the next consequent, by which the remittance will have been converted into French money; — this having to be still changed into Lisbon money, I look to the question, and find the term 565 rees to be equal to 3 francs; and as the last consequent left in the stating was in francs, I make these 3 francs the next antecedent, placing opposite to it its equivalent of 565 rees, as a consequent; the next antecedent must necessarily be in rees, which is the kind in which the antecedent is required; and leaving a blank place for it, as in the previous examples, I place opposite thereto its equivalent consequent of £1000, which being of the same kind as the first antecedent, the stating is finished, and I proceed to work it.

In the working I have abridged first the operation, by proportionately reducing and cancelling those terms of the line of dividend, and those of the line of divisor, which admitted of it, and in this working I was able to do so, until the whole of the terms of the divisor were cancelled, leaving only the reduced terms of the dividend to be multiplied into each other for the result.

I hardly need inform or remind my readers, that like quantities cancel each other when respectively

employed as terms of divisors and of dividends; or that a divisor and a dividend, reduced by a common ratio, remain in the same proportion to each other; nor those conversant with decimals, that, as in this example, the whole number 565 in the dividend, divided by the decimal 56·5 in the divisor, leaves a quotient of 10.

The proof would be precisely as before, by placing the antecedent found, of 4960000 rees, in the vacant place in the column of antecedents, and multiplying the terms of the columns of antecedents, and those of that of the consequents, as before.

To shew clearly the advantage of the calculation of this example by the rule of equation over the other method (viz. by statings in the rule of three), I proceed now to work it according to the latter method; first premising, that in neither mode will be noticed the charges which would be incurred by the circuitous remittance, as that will be duly considered in its proper place, in a subsequent part of this work.

Working of the 3d Example by the Rule of Three.

First.—What would the £1000 produce at Amsterdam?

	£		Fl.	St.		£		Fl.	
As	1	:	12	8	::	1000	:	12400	Answer.

20

2,0)24800,0

12400 florins.

Second.—What would 12400 florins produce at Paris?

As $56\frac{1}{2}$ grotes *or*
2
4)113
2,0)2,8 4 pfennings.

	Fcs.	Fl.	Fcs.	Cs.	
1 fl. 8 st. 4 pf.	: 3 ::	12400	: 26336	$28\frac{36}{113}$	Answer.

320
28
248
16
372
172
3968000
28
3
452
Fr. Cs.
452)11904000(26336 $28\frac{36}{113}$
904
2864
2712
1520
1356
1640
1356
2840
2712
128
100
452)12800(28
904
3760
3616
144
$\frac{144}{452} = \frac{36}{113}$

Third.—What would 26336 fcs. $28\frac{36}{113}$ cs. produce at Lisbon?

	Fcs.	Rees.	Fcs.	Cs.		Rees.	
As	3	: 565 ::	26336	$28\frac{36}{113}$	:	4960000	Answer.

300

565

13168140
15801768
13168140

188 = $\frac{1}{3}$ for $\frac{36}{113}$

3,00)14880000,08

4960000

or in one point of view the statings of the question would be thus:—

	£	Fl. St.	£	Florins.	
As	1	: 12 8 ::	1000	: 12400	then

	Gr. Fl.	Fcs.	Florins.	Fcs.	Cs.	
As	$56\frac{1}{2}$	: 3 ::	12400	:: 26336	$28\frac{36}{113}$	and then

	Fc.	Rees.	Fcs.	Cs.		
As	3	: 565 ::	26336	$28\frac{36}{113}$	:	4960000 rees, Answer.

Of *logarithms* I shall treat under the head of proportional or arbitrated exchanges; for, in direct exchanges, where the terms to be worked are but few, the operation may, in general, be as quickly performed by common numbers as by logarithms; but in long statements, where the question, or statings, consist of several terms, the great utility of logarithms will be very apparent, and the use of them become perfectly easy after a little practice.

I now proceed to shew the calculations of direct exchanges between London and the several places with which it has an exchange established, agreeably to the list of the courses of exchange printed in London in November 1827.

CALCULATIONS

OF

DIRECT EXCHANGES.

LONDON

Keeps accounts, as do all places in the United Kingdom of Great Britain, in pounds, shillings, pence, and farthings.

1 Pound = 20 Shillings.
1 Shilling = 12 Pence.
1 Penny = 4 Farthings.

Principal Gold Coins.

	Assay.	*Weight.*			*Sterling Value.*		
		oz.	dwt.	gr.	£.	s.	d.
The Guinea, of twenty-one shillings	Standard.	0	5	9	1	1	0
Half-do. ten shill. & sixpence	do.	0	2	16	0	10	6
Sovereign, twenty shillings	do.	0	5	3	1	0	0
Half-do. ten shillings	do.	0	2	13	0	10	0

Principal Silver Coins.

The Crown, of five shillings	do.	0	18	4	0	5	0
Half-do. two shill. & sixp.	do.	0	9	2	0	2	6
Shilling, twelve pence.....	do.	0	3	15	0	1	0
Sixpence, six pence.....	do.	0	1	19	0	0	6

It Exchanges with

	Quotations Printed. 27th Nov. 1827.	Quotations Done.	
Amsterdam, giving £1. stg. for an uncertain number.....	12 2	12 1	of florins & stivers.
Antwerp.....do....do....	12 3	12 1½	do.
Rotterdam ....do....do....	12 3	12 1¼	do.
Hamburgh.....do....do....	36 7	36 4½	schill. & grotes, Fl.
Altona.....do....do....	36 8	36 5	do.
Paris.....do....do....	25 55	25 42½	francs & centimes.
		25 47½	
Bourdeaux ....do....do....	25 65	25 45	do.
Vienna.....do....do....	10 2	9 59	florins effective.
		10 1	
Trieste.....do....do....	10 2	9 59	do.
		10 1	
Frankfort on the Main do....	151	150¼	batzen.
Petersburgh, giving an uncertain number of pence.....	10	—	for 1 rouble.
Berlin.....do....do....	—	—	1 curr. doll.
Madrid .....do....do....	35	35⅛	1 doll. of exchge.
Cadiz .....do....do....	35¼	35⅜	do.
Bilboa.....do....do....	35	35¼	do.
Seville.....do....do....	34¾	—	do.
Malaga.....do....do....	—	—	do.
Gibraltar .....do....do....	46	—	1 hard doll.
Leghorn.....do....do....	48	48½	1 pezza of 8 rials.
Genoa, giving £1 stg. for an uncertain number	25 50	25 35	of new lire & centms.
Venice, giving an uncertain number of pence.....	46	—	for 6 Austrian lire.
Naples.....do....do....	39	39⅜	1 ducat di regno.
Palermo.....do....do....	118	120	1 ounce.
Lisbon .....do....do....	47½	48	1 milrea.
Oporto.....do....do....	47½	48	do.
Rio de Janeiro ..do....do....	34	34½	do.
Bahia.....do....do....	37	—	do.
Buenos Ayres..do....do....	—	—	1 dollar.
Dublin, giving £100 stg. for £100 in Ireland, with prem.	1½	—	
Cork.....do....do....	1½	—	

The exchanges printed in London are generally worse for the drawer than those at which he actually negotiates his bills; but both prices are always quoted, as will be seen above, when any transactions take place; when not, it is indicated by —: sometimes bills are done at different rates, as above on Paris, where the quotations are 25·42½ and 25·47½, which signifies that bills on that place were negotiated at different exchanges, from 25·42½ to 25·47½.

Usances with

France, Hamburgh, and Holland	1 month after date.
Portugal and Spain	2 ..do....do.
Italy	3 ..do....do.

Days of Grace

Are three, Sundays and holidays included; and bills falling due (days of grace included) on any such day, must be paid, or in default thereof be protested, the day previous.

AMSTERDAM, ANTWERP, ROTTERDAM.*

THESE places, and all others in the kingdom of the Netherlands, keep accounts in florins (or guilders), stivers, and pfennings.*

1 florin = 20 stivers.
1 stiver = 16 pfennings.

The other monies in which exchange business and some particular dealings are transacted, and their relative values, are as follow:—

1 pound Flemish = 20 shillings Flemish, or 240 grotes Fl. or 6 florins.
1 shilling..... = 12 grotes.....or 6 stivers.
1 grote..... = ½ a stiver ..... or 8 pfennings.
1 rix dollar.... = 2½ florins.....or 50 stiv. or 8⅓ shill. Fl. or 100 grotes Flemish.
2 do..... = 5 florins.
3 do..... = 25 shillings Flemish.
1 florin..... = 3⅓ shill. Flem. or 40 grotes Flem.
3 do..... = 10 shill. Flem.
1 stiver..... = 2 grotes Flem.

Principal Gold Coins.

	Assay.		*Weight.*			*Sterling Value.*		
	car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The Ruyder of 14 florins currency, W.	0	0¼	0	6	8	1	4	6¾
.. Half do.....7 ..... S.	0	0	0	3	4	0	12	3¾
.. Ducat .....5do.&11a14st. B.	1	2¼	0	2	6	0	9	6

* For the new mode of keeping accounts and quoting exchanges in Holland, see p. 81.

Principal Silver Coins.

			Assay.		*Weight.*			*Sterling Value.*		
			oz.	dwt.	oz.	dwt.	gr.	£.	*s.*	*d.*
The Silver Ruyder	of 63 Stivers....	S.	0	0	1	1	1	0	5	5
.. 3 Florins-piece	of 60 do.....	W.	0	5½	1	0	14	0	5	2¼
.. Rix-dollar...	of 50 do.....	W.	0	16½	0	18	0	0	4	1½
.. Flor. or Guild.	of 20 do.....	W.	0	5½	0	6	8	0	1	8½
.. 6 Stuyver-piece	of 6 do.....	W.	4	15	0	3	0	0	0	4½
.. 12 do.....	of 12 do.....	W.	0	16½	0	4	12	0	1	0½

W, *means worse*, B, *better than Standard; and* S, *equal to Standard.*

They exchange with		*Quotations prior to Alterations.*
Breslau	giving an uncertain number of stivers	45 for £1 Prussian banco.
Dantzig ...	£1 Flemish for an uncertain number ...	417 of Groschen currency.
Paris, Bourdeaux	an uncertain number of grotes Flemish	57 for 3 francs.
Genoa.....	..... do. ..... do.	89½ 5⅛ lire fuori banco.
Hamburgh	..... do. ..... of stivers.....	34¼ 2 marks banco.
Leipzig ...	..... do. ..... do.	36 1 rix-dol. convt. money.
Leghorn...	..... do. ..... of grotes Flemish ...	90⅛ 1 pezza of 6 lire.
Lisbon ... Oporto ...	..... do. ..... do.	45 1 crusado of 400 rees.
London ...	..... do. ..... of shillings & grotes Flemish	37 for £1 sterling.
	..... do. ..... of florins and stivers	11 9⅛ for £1 sterling.
Naples	..... do. ..... of grotes Flemish ...	79 for 1 ducat del regno.
Spain	..... do. ..... do.	103a/105 for 1 ducat exchange.
Venice	..... do. ..... do.	93⅛ for 1 ducat banco.
Vienna ...	..... do. ..... of stivers	36 1 rix-dollar.
Frankfort	..... do. ..... do.	35⅞ 1 do.
Petersburgh	..... do. ..... do.	10⅛ 1 paper ruble.

Usances with

Germany and Switzerland .... 14 days after sight.
Dantzig, Konigsberg, and Riga, 30 ,, ... ,,
England and France ..... 1 month after date.
Italy, Spain, and Portugal .... 2 ,, ... ,,

Days of Grace

Are abolished since the introduction of the Code Napoleon.

N.B. The agio between bank and current money has been recently abolished.

---

* Since the above was written, a law has been passed, by which all accounts must be kept in Holland in florins and centimes:—

1 florin = 100 centimes.

The exchanges upon all foreign parts are therefore now quoted in those monies. In order, however, to adhere as nearly as possible to the previous quotations, a very simple, but at the same time no less ingenious, mode has been adopted, viz.;—where, formerly, a number of grotes Flemish were given for a certain quantity of foreign money, the same number of florins are now given for forty times as much foreign money as before, because forty grotes Flemish are equal to one florin; thus, formerly, 100 grotes Flemish, more or less, were given to Spain for 1 ducat of exchange; but now, 100 florins, more or less, are given for 40 ducats of exchange. Again, where, formerly, a number of stivers were given for a certain quantity of foreign money, now as many florins are given for twenty times as much foreign money as before: thus, formerly, $10\frac{3}{16}$ stivers, more or less, were given to St. Petersburgh for 1 paper ruble; now, $10\frac{3}{16}$ florins, more or less, are given for 20 paper rubles.

* This asterisk has reference to page 79.

The quotations of the several exchanges from Amsterdam upon foreign parts, were, on the 15th November, 1827, as follow: —

	fl.	cs.	
London	11	90	for £1 sterling.
Hamburgh ..	35 1/16		40 marks banco.
Madrid	97		
Bilboa.....	97 1/4		40 ducats of exchange in specie.
Cadiz	97 1/2		
Seville.....	95 1/2		
Lisbon.....	38		40 crusados.
Oporto	38		
Naples	78 5/8		40 duc. di g.
Leghorn	96		40 pezzas d. o. r.
Genoa.....	46 7/8		100 new lire.
Paris	56 1/2		40 French crowns, *or*
Bourdeaux ..	56 1/8		120 francs.
Vienna	36		20 rix-dollars.
Frankfort ..	35 7/8		

EXAMPLES.

Reduce £584. 13*s*. 6*d*. into florins, at the exchange of 12 florins 9 stivers (12/9) per £ sterling?

£	Fl. st.	£	*s*.	*d*.	Fl.	*s*.	*p*.	
As 1	: 12	9 :: 584	13	6	: 7279	4	1	Answer.

240 — 20 = 249; 20 = 11693; 12 = 140322; 249 = 1262898; 561288; 280644; 2,0 =)34940178(/14558,4 = fl.7279 4 1

240 = 1094; 960 = 1340; 1200 = 1401; 1200 = 2017; 1920 = 978; 960 = 18; 4 = 72; 4 =)288(1; 240 = 48

Here I at once reduce the first term into pence, by placing 240 as the equivalent for a pound, instead of multiplying first by 20 and then by 12; and after the division, I reduce the remainder, 18, into pfennings, by multiplying by 4 and 4 instead of 16, — the divisor, 240, I bear in mind, which I might also have done with the multipliers, 4 and 4, thus: $\frac{18}{72}$ $\frac{}{288}$ all of which is to promote expedition by saving figures. The same principle will be observed hereafter; but having been once explained, will not be noticed again; — where not immediately perceptible, it will become so by a little reflection.

By Decimals.

fl. st. 12 9 = $12\frac{9}{20}$ = 12·45

£ s. d. 584 13 6 = $584\frac{162}{240}$ = 584·675

£ fl. As 1 : 12·45 :: £ 584·675 : fl. st. p. 7279 4 1 Ans.

12·45

2923375
2338700
7016100

7279·20375
20

4·07500
4

·30000
4

1·20000

The advantage, as regards dispatch, by working this example by decimals, is evident, and would have been somewhat greater, had the multipliers, 20, 4, and 4, used to bring the fractions into stivers and pfennings, been borne in mind and not written.

What is the value, in sterling money, of 12406 florins 10 stivers, at the exchange of 40 shillings and 8 grotes Flemish (40/8) per £ sterling?

S. g. Fl. st.
40 8 Flem. = 12 4

12

4,0)48,8

12·4

Fl. st. £ Fl. st. £ s. d.
As 12 4 : 1 :: 12406 10 : 1016 18 6 Answer.

20 20

244)248130(1016
244

413
244

1690
1464

226
20

)4520(18
244

2080
1952

128
12

)1536(6
1444

92

By Decimals.

Fl.	£	Fl.		£	s.	d.
As 12·2	: 1 ::	)12406·5(	:	1016	18	6

122 \1016

206
122

845
732

113
20

)2260(18
122

1040
976

64
12

)768(6
732

36

By the Rule of Equation.

Florins 6 = 20 shillings Flem.
Shillings Flem. 40·8 = £1.
How many pounds ? = 12406·10 florins.

$$\frac{20 \times 12406{\cdot}5}{6 \times 40{\cdot}6666} = £1016.\ 18s.\ 6d.$$

Worked thus: —

40·6666	12406·5	
6	20	
243·9996	)248130·0000(1016·927	
	2439996	20
	4130400	18·540
	2439996	12
	16904040	6·480
	14639976	
	22640640	
	21959964	
	6806760	
	4879992	
	19267680	
	17079972	
	2187708	

How many florins shall I receive in Amsterdam for £1246. 17*s*. 6*d*., the course of exchange being 12 florins 7½ stivers per £ stg. ?

Ans. 15430 fl. 1 st. 8 p.

If I buy a bill in Antwerp on London for 23406 fl. 17 st. 6 p., at the exchange of 39 shillings 11 grotes Flemish per £ stg., what sterling money shall I receive for it ?

Ans. £1954. 12*s*. 10*d*.

Reduce into sterling money 6943 fl. 11 st., at the exchange of 12 florins 1 stiver per £ stg. ?

Ans. £576. 4*s*. 7*d*.

What is the sterling value of 8465 fl. 13 st. 15 p. at 39 shillings 11½ grotes Flemish per £ stg. ?

Ans. £706. 4*s*. 2*d*.

How many florins shall I receive for a bill upon Rotterdam for £875. 16*s*. 10*d*., drawn at the exchange of 11 florins 17¾ stivers per £ stg. ?

Ans. 10411 fl. 11 st. 4 p.

Reduce £2125. 14*s*. 7*d*. into florins, at the exchange of 40 shillings 6½ grotes Flemish per £ stg. ?

Ans. 25854fl. 3 st. 8 p.

HAMBURGH—ALTONA—

Keep accounts in marks, shillings, and pfennings Lubisch, or Hamburgh money:—

1 mark = 16 shillings.
1 shilling = 12 pfennings.

The other monies in use, and their relative values, are as follow:—

1 pound Flemish = 20 shillings Fl. or 2½ rix-dollars, or 7½ marcs.
1 shilling..... = 12 grotes Fl. or 6 shillings Lubisch.
1 grote..... = ½ shill. Lubs. or 6 pfennings Lubs.
1 rix-dollar .... = 3 marks Lubs. or 8 shillings Flem.
1 mark Lubs. ... = 2⅔ shill. Fl. or 32 grotes Fl.
1 shill..... = 2 grotes Fl.

Bank money is from 18 to 26 per cent better than current money.

Principal Gold Coins.

	Assay.		*Weight.*			*Stg. value.*		
	car.	gr.	oz.	dwt.	gr.	£	*s.*	*d.*
The double ducat of 14 marks.....B.	1	3½	0	4	12	0	19	2¼
Single do. 7 do.....B.	1	2½	0	2	6	0	9	5¾

Principal Silver Coins.

	oz.	dwt.						
The species dollar, or dollar of Lubeck of 3 marks.....W.	0	13	0	18	18	0	4	4¼
Mark, or 16 shillings piece ...W.	3	16	0	7	4	0	1	0½
Half-do. or 8 do.....W.	3	16	0	3	15	0	0	6¼

They Exchange with		*Quotations 27th Nov. 1827.*
Amsterdam, Antwerp	giving 120 marks banco, for an uncertain number	107¼ of florins ct.
Paris, Bourdeaux	100.....do.....do.....	188 of francs.
Petersburgh	an uncertain number of shill. Lubs. banco.	9 1/16 for 1 rouble banco A.
London.....	do....shill. and gr. Fl. banco	35·6 for 1 £ stg.
Madrid, Cadiz, Bilboa	do...grotes Fl. banco.....	87½ for 1 duc. of ex. 375 mar's. d. p.
Lisbon, Oporto	do.... do.....	34¼ for 1 crusade of 400 rs.
Genoa	100 marcs banco for an uncertain number.....	187¾ of lire.
Leghorn	an uncertain number of gr. Fl. banco.....	87½ for 1 pezza of 8 reals.
Augsburg	200 marcs banco for an uncertain number	147¾ of florins ct.
Frankfort...	do.....do.....	148 do. in 20 Xr. Ps.
Prague.....	do.....do.....	148¼ do. effective.
Vienna.....	do.....do.....	148¼ do. do.
Breslau.....	300 do.....do.....	154 of Pruss. doll. ct.
Copenhagen	do.....do.....	219 of rix-doll. banco.
Leipzig.....	do.....do...	148 of dollars W. Z.

Usances with

Germany	14 days after sight.
England, France, and Holland..	1 month after date.
Italy, Spain, and Portugal.....	2 do. do.

Days of Grace

Are 12, Sundays and holidays included; and bills falling due on a Sunday or holiday must be paid, or in default thereof protested, on the day previous.

N. B.—Respectable houses, or those which have any regard for their credit, do not avail themselves of any days of grace; indeed, to do so would be considered as almost equivalent to having stopped payment.

EXAMPLES.

Reduce £3076. 14*s*. 6*d*. into marks, at the exchange of 37 shillings 8 grotes Flemish per £ stg.

S.	g.
37	8
12	
2)452	grotes Fl.
226	shill. Lubs.

or

S.	g.
37	8
6	
226	shill. Lubs.

	£	Sh.		£	s.	d.		Mc.	sh.	p.	
As	1	: 226	::	3076	14	6	:	43458	11	10	Ans.

240

20

61534

12

738414

226

4430484

1476828

1476828

240)166881564(16 695339(43458

1440 64

2288 55

2160 48

1281 73

1200 64

815 93

720 80

956 139

720 128

2364 11

2160

204

12

)2448(10

240

48

Or divide 166881564 by 240 × 16, viz. 3840, when the quotient will at once be in marks; it being the same, whether you first divide by 240 and then by 16, or by 240 × 16, or 3840 at once.

By Decimals.

£	S. L.	£	Mcs.	s.	p.
As £1	: 226	:: 3076·725	: 43458	11	10

or mcs. 14·125

14·125

15383625
36920700
12306900
3076725

43458·740625
4

2·962500
4

11·850000
12

10·200000

By the Rule of Equation.

£1 = 37·8 shill. Flem.
shill. Flem. 1 = 6 shill. Lubs.
shill. Lubs. 16 = 1 marc.
How many marcs ? = £3076. 14*s.* 6*d.*

$$\frac{37{\cdot}6666 \times \overset{3}{\cancel{6}} \times 3076{\cdot}725}{\underset{8}{\cancel{16}}} = \begin{matrix} \text{Mcs.} & \text{s.} & \text{p.} \\ 43458 & 10 & 7 \end{matrix}$$

Worked thus: —

37·6666
3
112·9998
3076·725
5649990
2259996
7909986
6779988
7909986
33899940
8)347669·3096550
43458·6637068
4
2.6548272
4
10·6193088
12
7·4317056

By the latter mode there is a trifling difference, owing to the decimal for the 37s. 8g. Fl. not being finite; had I worked with more places of decimals, it would have come exact.

Reduce 43458 marcs, 11 shillings, 10 grotes, Lubisch, into sterling money, at 37 shillings, 8 grotes, Flem. per £ sterling.

S. g.
37 8 = 226 shil. Flem. as shewn in the last example.

S. L.	£	Mcs.	s.	g.		£	s.	d.	
As 226	: 1 ::	43458	11	10	:	3076	14	6	Answer.

12
2712

16
260749
43459
695339
12
8344078(3076
8136
20807
18984
18238
16272
1966
20
39320(14
2712
12200
10848
1352
12
16224(5
13560
2664

The remainder being $\frac{2664}{2712}$, I take the number of pence as 1 more,—viz. 6 instead of 5; it being the practice, that when the remainder in the last denomination is equal to, or exceeds, one half the divisor, to augment the quotient figure by 1.

By Decimals.

S. L.	£		Mcs.		£.	s.	d.
As 226	: 1	::	43458·739	:	3076	14	6

or mcs. 14·125

14·125)43458·739(3076
42375
108373
98875
94989
84750
10239
20
204780(14
14125
63530
56500
7030
12
84360(5
70625
13735

By the Rule of Equation.

marc 1 = 16 shil. Lubs.
shil. Lubs. 6 = 1 shil. Flem.
shil. Fl. 378 = £1.
How many pounds? 43458m. 11s. 10g.

$$\frac{\overset{8}{\cancel{16}} \times 43458{\cdot}739}{\underset{3}{\cancel{6}} \times 37{\cdot}6666} = \begin{array}{ccc} £. & s. & d. \\ 3076 & 14 & 7 \end{array}$$

PARIS — BOURDEAUX

Keep accounts in francs and centimes, or cents.

1 franc = 100 centimes.

Principal Gold Coins.

		Assay.		*Weight.*			*Sterling Value.*		
		car.	gr.	oz.	dwt.	gr.	£	*s.*	*d.*
The Louis d'or	W.	0	2	0	4	22	0	18	7½
Napoleon, or 20 franc-piece ..	W.	0	1½	0	4	3½	0	15	9½

Principal Silver Coins.

		oz.	dwt.					
The crown of Louis XIV. of 5 francs	W.	0	5	0	17	12	0	4	4½
Do. do. XV. do.....	W.	0	6	0	18	12	0	4	7½
Do. do. XVI. do.....	W.	0	7	0	18	18	0	4	7¾
Do. Napoleon do.....	W.	0	8½	0	16	2	0	3	11½
Do. Consular do.....	W.	0	7	0	15	12	0	3	10½
30 sol-piece	W.	3	8	0	6	12	0	1	0½
15 do.	W.	3	8	0	3	6	0	0	6
Franc-piece of Buonaparte....	W.	0	10	0	3	6	0	0	9½
Half-do.	W.	0	8½	0	1	15	0	0	4½

They exchange with		*Quotations 4th Dec. 1827.*
Amsterdam, giving 3 francs for an uncertain number		57⅞ of grotes Flem. banco.
Spain	an uncertain num. of francs	14·80 for 1 doubloon eff. of 32 rials.
Genoa.....	..... do. ..... of centimes	¾ p. diff. on 100 new lire.
Hamburgh	..... do. ..... of francs	184¾ for 100 marks banco.
Lisbon ... Oporto ...	3 francs for an uncertain number ...	600 of reis.
Leghorn...	an uncertain number of centimes.....	506 for 1 pezza da otto.
London ...	..... do. ..... of francs	24·95 for 1 pound sterling.
Naples	..... do. ..... of centimes	506 for 1 ducat del regno.
Vienna....	..... do. ..... of francs	251¾ for 100 florins in 20 Xr.
Frankfort .	..... do. ..... of do.	2⅝ difference on 100 francs.
Petersburgh	..... do. . ..... of centimes	107½ for 1 rouble.

Usances with

Spain and Portugal ..... 30 days after date.

England and other countries .. 60 ....do.

Days of Grace

Are abolished by the Code Napoleon.

EXAMPLES.

Reduce £574. 15*s*. 9*d*. into francs, at the exchange of 25 francs 80 cents per £ stg.

£	Fcs. cs.		£	*s*.	*d*.		Fcs.	cs.	
As 1	: 25	80	:: 574	15	9	:	14829	53	Answer.

240 | 100 | 20

2580 | 11495

12

137949

2580

11035920

689745

275898

1,00

240)355908420(/14829,52

240

1159

960

1990

1920

708

480

2284

2160

1242

1200

420

240

180

By Decimals.

£	Fcs.	£
As 1	: 25·8	:: 574·7875

25·8

45983000

28739375

11495750

Francs 14829·51,75000

What is the value of 14829 francs 53 centimes, in sterling money, at the exchange of 25 francs 80 cents per £ stg. ?

Fcs.	cs.	£		Fcs.	cs.	£	s.	d.	
As 25	80	: 1	::	14829	53	: 574	15	9	Answer.

100 — 100

2580 — 1482953(574

12900

19295

18060

12353

10320

2033

20

40660(15

2580

14860

12900

1960

12

23520(9

23220

300

By Decimals.

Fcs.	£		Fcs.	£	s.	d.
As 25·8	: 1	::	14829·53	: 574	15	9

25·8)14829·53(574·787

1290 — 20

1929 — 15·740

1806 — 12

1235 — 8·880

1032

2033

1806

2270

2064

2060

1806

254

Reduce £864. 15*s*. 3*d*. into French money, at the exchange of 24 francs 95 cents per £ stg.

Ans. 21575 fcs. 82 cs.

Reduce 12768 fcs. 19 cs. into sterling money, at 25 fcs. 16 cs. per £ stg.

Ans. £507. 9*s*. 7*d*.

What shall I receive at Paris for a bill for £1924. 13*s*. 7*d*., drawn at the exchange of 24 francs 95½ cents per £ stg. ?

Ans. 48030 fcs. 37 cs.

What is the sterling value of 23899 francs 17 centimes, the course of exchange being 25 francs 20 cents. per £ stg. ?

Ans. £948. 7*s*. 7*d*.

How much must be paid in Bourdeaux for a bill amounting to £864. 3*s*. 7*d*., drawn at the exchange of 25 francs 63 cents per £ stg. ?

Ans. 22148 fcs. 91 cents.

How much will be received in London for a bill drawn from Paris for 37652 francs 80 centimes, at the exchange of 24 francs 97 centimes per £ stg. ?

Ans. £1507. 18*s*. 5*d*.

VIENNA AND TRIESTE

Keep accounts in florins, kreutzers, and pfennings.

1 florin = 12 kreutzers.
1 kreutzer = 4 pfennings.

Rix-dollars are also used in exchanges.

1 rix-dollar = 1½ florins or 90 kreutzers.

Principal Gold Coins.

	Assay.		*Weight.*			*Sterling Value.*		
	car.	gr.	oz.	dwt.	gr.	£	s.	d.
The ducat of Maria Theresa.....B.	1	3	0	2	6	0	9	6¼
do. of Francis II. .....B.	1	2¼	0	2	6	0	9	5¼

Principal Silver Coins.

	oz.	dwt.						
The species dollar of Francis II. or Maria Theresa .....W.	1	5	0	18	1	0	3	11
Piece of 20 kreutzers of do. do. W.	4	7	0	4	7	0	0	7
do. of 11 do. of 1795 ..W.	5	7	0	2	12	0	0	3¼

They exchange with	*Quotations Nov. 14, 1827.*
Amsterdam, giving an uncertain number of rix-dollars	137½ for 100 rix-dollars.
Constantinople do..... ... of florins.....	— 100 piastres.
Genoa..... do.....do.....	117⅛ 300 francs.
Hamburgh ... do..... of rix-dollars	145⅜ for 300 marks banco.
Leghorn..... giving 1 florin for an uncertain number ...	57¾ of soldi.
London..... giving an uncertain number of florins	9·50 for £1 stg.
Paris..... do.....do.	117¼ 300 francs.
Frankfort..... do.....do.	99⅜ 100 flor. W. Z.
Milan..... giving 1 rix-dollar for an uncertain number	100 of soldi.

Usance

Is understood to be 14 days after acceptance.

Days of Grace

Are 3 on bills drawn after date, or any term after sight not less than 7 days, or payable on a particular day; but bills presented after maturity must be paid within 24 hours. Sundays and holidays are included in the days of grace; and if the last day of grace fall on such a day, payment must be made, or in default thereof the bill protested, on the first following open day.

EXAMPLES.

Reduce £643. 8*s.* 6*d.* into florins, at the exchange of 10 florins 24 kreutzers per £ stg.

£	Fl.	kr.		£	*s.*	*d.*		Fl.	kr.	
As 1	: 10	24	::	643	8	6	:	6691	37	Answer.

240 | 60 | 20

624 | 12868

12

154422

624

617688

308844

926532

240)96359328($^{6,0}_{40149,7}$

960

359

240

1193

960

2332

2160

1728

1680

48

Fl. 6691 37

By Decimals.

£	Fl.		£	Fl.	kr.	
As 1	: 10·4	::	643·425	: 6691	37	Ans.

10·4

2573700

6434250

6691·6200

60

37·200

Or divide at once by 240 × 60, viz. 1440.

What must be paid in London for a bill drawn from Trieste, for 6691 florins 37 kreutzers, at 10 florins 24 kreutzers per £ stg.?

Fl.	kr.		£		Fl.	kr.		£	s.	d.	
As 10	24	:	1	::	6691	37	:	643	8	6	Answer.

60 — 60

624 — 401497(643

3744

2709

2496

2137

1872

265

20

5300(8

4992

308

12

3696(5

3120

576

By Decimals.

Fl.	£		Fl.		£	s.	d.	
As 10·4	1	::	6691·6166	:	643	8	6	Ans.

10·4)6691·6166(642·424

624

451

416

356

312

441

416

256

208

486

416

70

20

8·480

12

5·760

Reduce £734. 8*s*. 9*d*. into florins, at 10 florins 57 kreutzers per £ stg.

Ans. 8042 fl. 5 kr.

Reduce 7846 florins 17 kreutzers into sterling money, at the exchange of 10 florins 40 kreutzers per £ stg.

Ans. £735. 11*s*. 9*d*.

What must be paid in Trieste for a bill drawn from London for £956. 15*s*. 1*d*., at the exchange of 9 florins 58 kreutzers per £ stg.?

Ans. 9535 fl. 39 kr.

What is the sterling value of 8647 florins 20 kreutzers, the course of exchange being 10 florins 7 kreutzers per £ stg.?

Ans. £854. 15*s*. 3*d*.

How much must be paid in London for a bill drawn from Vienna for 9810 florins 17 kreutzers, at 10 florins 23 kreutzers per £ stg.?

Ans. £944. 16*s*. 3*d*.

Reduce £8103. 13*s*. 3*d*. into Austrian money, at 9 florins 58 kreutzers per £ stg.

Ans. 80766 fl. 30 kr.

FRANKFORT ON THE MAIN.

ACCOUNTS are kept here in florins (or guilders), kreutzers, and pfennings; as also in rix-dollars, kreutzers, and pfennings, convention money, of which 55 are equal to 46 exchange money.

1 rix-dollar = 90 kreutzers.
1 florin = 60 do.
1 kreutzer = 4 pfennings.

Batzen are also used in exchanges, of which 15 are equal to 1 florin, and 22½ to 1 rix-dollar.

The principal coins current here are the same as at Vienna.

It exchanges with	*Quotations Dec.* 1827.	
Amsterdam, giving an uncertain number of rix-dollars	138	for 100 rix-doll. Dutch cur.
Bourdeaux, Paris, &c. ..... do. ..... do.	78¾	300 francs.
Bremen ..... do. ..... do.	109 7/16	100 rix-doll. Louis d'or of 5.
Hamburgh ..... do. ..... do.	146 5/16	100 rix-doll. banco.
London ..... do. ..... batzen.	148	£1 sterling.
Vienna ..... do. ..... rix-dolls.	100⅛	rix-dollars.
Berlin ..... do. ..... kreutzers	103¾	1 dollar.
Leipzig ..... do. ..... rix-dolls.	99¾	100 rix-doll. convent. money.

Usance

Is fourteen days after acceptance.

Days of Grace,

Except on bills drawn at sight, are 4, in which Sundays and holidays are not included.

EXAMPLES.

Reduce £2106. 14*s*. 3*d*. into florins, at the exchange of 155 batzen per £ sterling.

£	B.	£	*s*.	*d*.	Fl.	kr.	p.	
As 1 :	155 : :	2106	14	3 :	21769	21	3	exchange money. Answer.

20
240
42134
15
12
1200
505611
240
155
3600
2528055
2528055
505611
78369705(21769
7200
6369
3600
27697
25200
24970
21600
33705
32400
1305
60
78300(21
7200
6300
3600
2700
4
10800(3
10800

Here I multiply the first term by 15 (such number of batzen being equal to 1 florin), instead of first dividing by 240 and that quotient then by 15.

By Decimals.

£	B.	£	Fl.	kr.	p.	
As 1	: 155	:: 2106·7125	: 21769	21	3	Answer.

155

105335625
105335625
21067125

5)326540·4375

3)65308·0875

21769·3625
60

21·7500
4

3·0000

I here divide by 5 and then by 3, ($5 \times 3 = 15$) instead of by 15 at once, the operation being shorter.

PETERSBURGH

Keeps accounts in rubles and copeiks.

1 ruble = 100 copeiks.

Principal Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Sterling Value.* £.	s.	d.
The eagle or imperial of 10 rubles...	S.	0	0	0	8	9	1	12	7¼
The ducat or czarvonitch	B.	1	1¾	0	2	6	0	9	4¾

Principal Silver Coins.

		oz.	dwt.					
The silver ruble of 100 copeiks of Alexander I.....	W.	0	16	0	13	12	0	3	1
Half ditto, or poltin of 50 do....	W.	0	16	0	6	18	0	1	6½
Silver ditto, of 100 do. of Paul I.	W.	0	15	0	13	12	0	3	1¼
Ditto .....do.....of Elizabeth	W.	1	11	0	16	18	0	3	6¼
Ditto .....do.....some also..	W.	1	7½	0	16	12	0	3	6½
Ditto .....do.....of Peter II.	W.	2	8½	0	18	6	0	3	5¼
Ditto .....do. of Catharine II.	W.	2	6	0	16	6	0	3	1¼
Ditto .....do....of Peter III.	W.	2	2½	0	15	0	0	2	11¼
Ditto .....do. of Peter the Great	W.	2	9	0	17	12	0	3	3½
Half do. or poltin of 50 do. of Anne	W.	1	11	0	8	9	0	1	9¼

Besides half and quarter rubles in proportion, according to the reigns when coined.

The silver ruble is worth about 360 copeiks, or $3\frac{6}{10}$ rubles, paper money. On the 18th Nov. 1827, it was 371½.

It exchanges with	*Quotations 18th Nov. 1827.*
Amsterdam, giving 1 paper ruble for an uncertain number	51¼ of cents. Dutch currency.
Hamburgh.....1....do.....do.....	9¼ shil. lubs. banco.
London.....1....do.....do.....	10¼ pence sterling.
Paris.....1.. .do.....do.....	108 centimes.

Usances.

There are none established here.

For remarks on bills bearing date from hence, according to the old style, see Part I. of this Work, page 11.

Days of Grace.

Bills drawn after date are entitled to 10 days grace, those drawn at sight to only 3 days, and those at any number of days after sight, none whatever; but bills received and presented after they are due, are, nevertheless, entitled to 10 days grace. In these days of grace are included Sundays and holydays, as also the day when the bills fall due, on which days they cannot be protested for non-payment; but on the morning of the last day of grace payment must be demanded, and if not complied with, the bill must be protested before sunset.

Reduce £417. 3*s*. 1*d*. into rubles, at the exchange of $9\frac{1}{2}d$. stg. per ruble.

Ans. 10538 r. 63 cs.

Reduce 10800 rubles and 91 copeiks into sterling money, at $9\frac{5}{8}d$ stg. per ruble.

Ans. £433. 3*s*. 3*d*.

What shall I receive in St. Petersburgh for a bill drawn from London for £125. 9*s*. 7*d*., the course of exchange being $9\frac{1}{8}d$. stg. per ruble?

Ans. 3049 r. 62 cs.

What is the sterling value of 23406 rubles, at 10*d*. stg. per ruble?

Ans. £975. 5*s*.

How much must be paid at St. Petersburgh for a bill drawn from London amounting to £306. 19*s*. 8*d*., at the exchange of $10\frac{1}{16}d$. stg. per ruble?

Ans. 7321 r. 84 cs.

Reduce 21316 rubles, 27 copeiks, into sterling money, at the exchange of $9\frac{9}{32}d$. stg. per ruble.

Ans. £879. 17*s*.

BERLIN

Keeps accounts in rix-dollars, good groschen, and pfennings.

1 rix-dollar.... = 24 good groschen.
1 good groschen = 12 pfennings.

Principal Gold Coins.

		Assay.		*Weight.*			*Sterling Value.*		
		car.	gr.	oz.	dwt.	gr.	£.	*s.*	*d.*
The double Frederick d'or, or pistole of 10 rix-dollars.....	W.	0	2	0	8	14	1	12	6½
Frederick d'or, or half pistole of 5 do. of Fred. Wm. III.....	W.	0	2¼	0	4	7	0	16	0½
Ditto of Frederick the Great....	W.	0	1¾	0	4	6	0	16	1¾
Of these some are.....	W.	0	0½	0	4	7	0	16	7

The ducat of the same value, &c. as the Dutch ducat.

There are half Frederick d'or's in proportion.

Principal Silver Coins.

		oz.	dwt.						
The rix-dollar of Frederick the Great Some are 3 oz. W.	W.	2	5	0	14	6	0	2	8¾
Guilder of Frederick IV.....	W.	2	7	0	14	6	0	2	8½
Ditto, or 23 Marien groschen piece.....	W.	2	5	0	11	3	0	2	1¾
Ditto of Frederick I.....	W.	2	5	0	11	3	0	2	1¾
Six groschen piece of Frederick the Great.....	W.	2	8	0	3	14	0	0	7½
Ditto of Frederick William III.	W.	3	7	0	5	9	0	0	10¾
Four do.....do.....	W.	5	2	0	3	8	0	0	4½

It Exchanges with	*Quotations Dec.* 1, 1827.	
Amsterdam, giving an uncertain number of rix-dollars.....	142¾	for 250 florins, Dutch cur.
Hamburgh .....do.....do.....	151¼	100 rix-doll. banco.
Leipzig..... .....do.....do.....	103⅝	100 do. convention money.
London.....do.....do.....	6·22½	£1. sterling.
Paris.....do .....do.....	81½	300 francs.
Frankfort $^{s}/_{m}$ ..... do..... .do..... ...	103⅝	100 rix-doll. conv^{n}. money.

Usance

Is here 14 days after acceptance.

Days of Grace

Are 3, when bills, including them, do not fall due on a Sunday or holiday, in which case they must be paid, or in default thereof protested, on the day previous to such Sunday or holiday.

EXAMPLES.

Reduce £321. 19*s*. 3*d*. into rix-dollars, at the exchange of 6½ rix-dollars per £ sterling.

£.	R.-d.	£.	*s*.	*d*.	R.-d.	g.g.	p.
As 1	: 6½	: : 321	19	: 3	: 2092	18	2.

240

20

6439

12

½ = ½)77271

6½

463626

38635 12

240)502261 12(2092

480

2226

2160

661

480

181

3

543

8

4356(18

240

1956

1920

36

12

432(1

240

192

Here I multiply the third term by $6\frac{1}{2}$, *i. e.* by 6, and take part for the $\frac{1}{2}$, according to the rule of practice, instead of first reducing the second term into halves or quarters, which would have required the product of the third term multiplied by the second to be divided by 2, to bring the quotient, after having divided by the first term, into rix-dollars. The remainder, after dividing the product by 240, I bring into good groschen by multiplying by 3 and 8 instead of 24 ($3 \times 8 = 24$), and include the 12 good groschen of the dividend in the second multiplication.

By Decimals.

£.	R.-d.		£.		R.-d.	g.g.	p.	
As 1	: 6·5	: :	321·9625	:	2092	18	2	Answer.
			6·5					
			16098125					
			19317750					
			2092·75625					
			3					
			2·26875					
			8					
			18·15000					
			12					
			1·80000					

What sterling money shall I receive in London for a bill drawn from Berlin for 2092 rix-dollars 18 good groschen and 2 pfennings, at 6½ rix-dollars per £ stg. ?

R.-d.	£.	R.-d.	g.g.	p.	£.	s.	d.	
As 6½	: 1	:: 2092	18	2	: 321	19	3	Answer.

or 6 12 g. g.

24

156

12

1872

24

8368

4184

18

50226

12

602714(321

5616

4111

3744

3674

1872

1802

20

36040(19

1872

17320

16848

472

12

5664(3

5616

48

By Decimals.

R.-d.	£.	R.-d.	£.	s.	d.	
As 6·5	: 1	:: 2092·757	: 321	19	3	Ans.

6·5)2092·757(321·96

195

142

130

127

65

625

585

407

390

17

20

19·20

12

2·40

Reduce £284. 17*s*. 5*d*. into rix-dollars, at the exchange of $6\frac{1}{4}$ rix-dollars per £ stg.

Ans. 1780 r.-d. 10 g.g. 7 p.

What is the sterling value of 11724 rix-dollars 17 good groschen and 8 pfennings, at $5\frac{7}{8}$ rix-dollars per £ stg. ?

Ans. £1995. 14*s*.

How much shall I receive in Berlin for a bill drawn from London for £1181. 9*s*. 2*d*., the course of exchange being $6\frac{5}{8}$ rix-dollars per £ stg. ?

Ans. 7827 r.-d. 3 g.g. 10 p.

What must be paid in London for a bill drawn from Berlin, the amount being 13704 rix-dollars and 7 pfennings, and the course of exchange $6\frac{3}{16}$ rix-dollars per £ stg. ?

Ans. £2214. 15*s*. 10*d*.

Reduce £517. 9*s*. 3*d*. into rix-dollars, at the exchange of $6\frac{3}{4}$ rix-dollars per £ stg.

Ans. 3492 r.-d. 20 g.g. 11 p.

How much must be paid in London for a bill drawn from Berlin for 8500 rix-dollars, at $6\frac{3}{4}$ rix-dollars per £ stg. ?

Ans. £1259. 5*s*. 3*d*.

MADRID—MALAGA—BILBOA—SEVILLE—CADIZ.

ACCOUNTS are kept differently in the various parts of Spain, and there is a great variety of monies of account and coins; but I shall notice such only as are necessary for the purposes of this work.

Madrid—Malaga—Bilboa

Keep accounts in reales and maravadies de vellon.

1 real = 34 maravadies.

Seville—Cadiz

Keep accounts in reales and maravadies de plata antiga.

1 real = 34 maravadies.

Also in reales and quartos.

1 real = 16 quartos.

Many merchants in Spain keep their accounts in maravadies only, which, in like manner as the Portuguese do their reas, they divide into thousands and millions; this, however, only as regards their home accounts—those with foreign countries being kept as above.

The several monies used in exchanges, and their relative values, are as follow:—

1 dollar of exchange	=	8 reales or 272 mars. de plata, or 15 reales and 2 mars., or 512 mars. de vellon, or 28 sols catalan.
1 pistole do.	=	4 dollars of exchange, or 32 reales or 1088 mars. de plata, or 2048 mars., de vellon.
1 ducat do.	=	375 mars. de plata, or $705\frac{1}{17}$ mars. de vellon.
1 hard dollar	=	20 reales de vellon, subdivided into reales and quartos, Mexican plata.

N.B.—At Malaga the dollar of exchange is equal to only 15 reales de vellon.

Principal Gold Coins.

	Assay. car. gr.	*Weight.* oz. dwt. gr.	*Stg. Value.* £. s. d.
The old doubloon .....W.	0 0½	0 17 8	3 7 0¼
The half do. ..... W.	0 0½	0 8 16	1 13 6
The new do. of 16 dollars or 320 reales de vellon .....W.	1 1	0 17 9	3 3 3

These latter are of different value, according to the dates when coined: those prior to 1771 are worth £3. 16*s.* 6*d.* per oz. (assuming the price of gold to be at standard value); prior to 1784, £3. 15*s.* 6*d.*; and after 1784, £3. 13*s.* per oz.; nor are they all of equal weight, some being as much as 3 dwt. lighter than others.

Principal Silver Coins.

	oz. dwt.					
The old hard dollar of 20 reales vellon of 1760 .....W.	0 7	0	17	6	0	4 3¾
The new do. .....of do.....W.	0 10	0	17	8	0	4 2¾
Some are only 7¼ W; a fair average, 9¼.						
The peseta of 5 reales de vellon....W.	0 10	0	4	8	0	1 0½
The old do.....W.	0 7	0	4	7	0	1 0¾
The pistarine .....W.	1 6	0	3	8	0	0 8¼
The real de vellon .....W.	0 10	0	1	0	0	0 2¾
The real de plata, or medio-peseta..W.	0 10	0	2	4	0	0 6

There are subdivisions of these several coins, of proportionate value.

SPAIN exchanges with		*Par in silver*.*
Amsterdam, giving 1 ducat of exchange for an uncertain number.....		103 of grotes Flemish.
Genoa.....	an uncertain number of dollars of exchange	118 for 100 pezze le. fi. banco.
Hamburgh	1 ducat of exchange for an uncertain number	94$\frac{85}{100}$ of grotes Flemish.
Lisbon.....	1 pistole of exchange.....do.....	2640¾ reas.
London ...	1 dollar of exchange.....do.....	39¾ pence sterling.
Leghorn ...	an uncertain number of dollars of exchange.....	119⅛ 100 pezze d. o. r.
Naples ...	do.....mars. de plata antiga	283½ 1 ducato d. r.
Paris.....	1 pistole of exchange for an uncertain number.....	16$\frac{17}{100}$ francs.
Venice.....	an uncertain number of mars de plata antiga.....	338¼ for 1 ducato banco.

* On the third Dec. 1827, the exchange at Madrid upon London was 36¼, and upon Paris 15 fcs. 9 cs.

Usance.

Cadiz and Bilboa on England,	2 months	after date.
Madrid and Seville on all countries,	2 do.	do.

Days of Grace

Vary in different parts of Spain; generally they are 14 days on foreign and 8 on inland bills; at Cadiz there are only 6 days' grace:—when bills are drawn at a certain date fixo or preciso, no days of grace are allowed.

Bills drawn at sight are not entitled to any days of grace; nor are any bills unless accepted prior to maturity.

EXAMPLES.

Reduce £732. 10*s*. sterling into reales and maravadies de vellon, at the exchange of 35 pence sterling per dollar of exchange.

d.	D.		£ *s.*		Rs. ms.	
As 35	: 1	::	732 10	:	75638 10	Answer.

20

or 15 r. 2 m.

14650

or $15\frac{1}{17}$ rs. 12

$2^m = \frac{1}{17}$)175800

15

879000
175800
10341 6

35)2647341 6(75638 10
245

197
175

223
210

134
105

291
280

11
34

374(11
35

24

The answer not being required in dollars, which is the denomination of the second term, I reduce this into the required denomination, viz. reales and maravadies, and then proceed as usual. The working might have been shortened by dividing by 5 and 7 ($5 \times 7 = 35$) instead of 35.

By Decimals.

£.	Reales.	£.	Rs.	ms.	
As ·1458333	: 15·0588213	: : 732·5	: 75638	11	Ans.

732·5

752941065
301176426
451764639
1054117491

·1458333)11030·58660225(75638·32
10208331 34

8222556 128
7291665 96

9308910 10·88
8749998

5589122
4374999

12141232
11666664

4745685
4374999

3706860
2916666

790194

By the Rule of Equation.

£ 1 = 240 pence.
Pence..... 35 = 1 dollar of exchange.
Dollar..... 1 = 512 maravadies.
Maravadies.... 34 = 1 real.
How many reales ? = £732. 10*s*.

$$\frac{\overset{120}{\cancel{240}} \times 512 \times \overset{146.5}{\cancel{732{\cdot}5}}}{\underset{7}{\cancel{35}} \times \underset{17}{\cancel{34}}} = \begin{matrix} \text{Rm.} & \text{ms.} \\ 75638 & 11 \text{ Ans.} \end{matrix}$$

Worked thus: —

512
120
61440
146·5
307200
368640
17 245760
7 61440
119)9000960·0(75638·32
833 34
670 128
595 96
759 10·88
714
456
357
990
952
380
357
230
238

Reduce 75638 reales and 11 maravadies into sterling money, at the exchange of 35 pence sterling per dollar of exchange.

D. d. Rs. ms. £. s.
As 1 : 35 :: 75638 11 : 732 10 Ans.

512 mars.

34

302563
226914

2571703

$5 \times 7 = 35$

12858515

7

512)90009605(12/175800
512
3880
3584
2969
2560
4096
4096
05

2,0)14650

£732 10

By Decimals.

Rs. d. Rs. £. s.
As 15·0588213 : 35 :: 75638·3232941 : 732 10 An.

$5 \times 7 = 35$

3781916164705

7

2647341·3152935(12/175800
150588213
1141459185
1054117491
873416942
752941065
1204758779
1204705704

5307535

2,0)1465,0

£732 10

I here leave the second term in the whole number of pence, instead of reducing it to the fraction of a pound, as the latter mode would increase the number of figures.

By the Rule of Equation.

Real....1 = 34 maravs.
Mars. 512 = 1 dollar of ex.
Dollar.. 1 = 35 pence.
Pence 240 = £1 sterlg.
How many pounds sterling? = 75638 rs. 11 ms.

$$\frac{34 \times \overset{7}{\cancel{35}} \times 75638{\cdot}323}{512 \times \underset{48}{\cancel{240}}} = £732\ 10s.\ \text{Ans.}$$

Worked thus: —

	75638·323	
	7	
512	529468261	
(4 × 12 = 48) 4	34	
2048	2117873044	
12	1588404783	
24576	)18001920·874(	732·500
	172032	20
	79872	10·000
	73728	
	61440	
	49152	
	122888	
	122880	
	874	

Reduce £917. 13*s*. 4*d*. into reales and maravadies de vellon, at the exchange of 34½ pence sterling per dollar of exchange.

Ans. 96132 rs. 1 mar.

What shall I receive in London for a bill drawn from Madrid for 86421 reales de vellon, at 34¾ pence sterling per dollar of exchange?

Ans. £830. 18*s*. 10*d*.

How many reales de plata antiga shall I receive at Cadiz for a bill drawn from London for £300., at the exchange of 35¼ pence sterling per dollar of exchange?

Ans. 16340 rs. 14 mars.

Reduce 96425 reales and 9 maravadies de plata antiga into sterling money, at the exchange of 35 pence sterling per dollar of exchange.

Ans. £1757. 14*s*. 11*d*.

A bill is drawn upon Malaga for £1205. 6*s*. 8*d*., at 34¼ pence sterling per dollar of exchange—how many reales de plata antiga must be paid for it?

Ans. 67569 rs. 2 mars.

Reduce 20000 reales de plata antiga into sterling money, at 35⅛ pence sterling per dollar of exchange.

Ans. £365. 17*s*. 8*d*.

GIBRALTAR

Keeps accounts in current dollars, reales, and quartos.

1 dollar.... = 8 reales.
1 real .... = 16 quartos.
1 hard dollar = 12 reales currency.
3 reales curr. = 5 reales de vellon.

For Coins, see Madrid, &c.

It exchanges with	*Quot. 3d Jan.* 1828.
London, giving 1 hard dollar for an uncertain number ...	48¾ of pence sterling.
France... 1 do.....do.....	5/14cs. of francs.
Spain..... at a variable rate per cent, premium or discount.	

EXAMPLES.

Reduce £805. 7*s.* sterling into dollars currency, at the exchange of 45 pence sterling per hard dollar.

d.	H. D.		£. *s.* *d.*		D. cy.	rs.	qrs.	
As 45	: 1	::	805 7 0	:	6442	6	6	Answer.

12 reales

20

16107

12

193284

12

$5 \times 9 = 45$ 5)2319408

9)463881 9

8)51542 6

6442 6 6

Here I bring the second term into reales currency, and proceed as usual; the quotient, after dividing by the first term (5 × 9), I divide by 8 (8 reales being equal to 1 dollar currency), and the result is in dollars currency.

By Decimals.

£.	H. D.	£.	D. cur. rs. qs.
As ·1875	: 1 ::	805·35	: 6442 6 6
	—	·5 × 3 = 15	
	1·5		

402·675
3

·1875)1208·0250(6442·8
11250 8

8302 6·4
7500 16

8025 6·4
7500

5250
3750

15000
15000

Here I make the second term, of 1 hard dollar, equal to $1\frac{1}{2}$ dollar currency, or 1·5, to bring it into the denomination of the required answer, and then proceed as usual.

By the Rule of Equation.

£1 = 240 pence.
Pence .... 45 = 1 hard dollar.
Hard dollar 1 = 12 rials curr.
Rials curr... 8 = 1 dollar curr.
How many dollars curr. ? = £805. 7*s*.

$$\frac{\overset{30}{\cancel{240}} \times 12 \times \overset{161\cdot07}{\cancel{805\cdot35}}}{\underset{9}{\cancel{45}} \times \cancel{8}} = \text{D. cur. rs. qs. } 6442\ 6\ 6$$

Worked thus: —

161·07
12

1932·84
30

9)57985·20

6442·80
8

6·40
16

6·40

Reduce £1050. 1*s*. 6*d*. into current dollars, at the exchange of 44½ pence sterling per hard dollar.

Ans. 8495 c. d^rs. cur.

Reduce 13465 current dollars into sterling money, at the exchange of 45⅛ pence sterling per hard dollar.

Ans. £1687. 16*s*.

What must be paid in London for a bill drawn from Gibraltar for 20000 current dollars, at 44¾ pence sterling per hard dollar?

Ans. £2486. 2*s*. 2*d*.

How many current dollars shall I receive at Gibraltar for a bill drawn from London, the amount £517. 6*s*. 8*d*. and the course of exchange 46⅛ sterling per hard dollar?

Ans. 3973 c. d. 1 r.

Reduce 12600 current dollars 6 reales and 12 quartos into sterling money, at 36 pence sterling per current dollar.

Ans. £1890. 2*s*. 6*d*.

How many current dollars will pay a bill drawn from London for £600, at 44⅜ pence sterling per hard dollar?

Ans. 4867 c. d^rs. 4r. 13qs.

LEGHORN.

Keeps accounts in pezze da otto reali, and denari di pezza.

1 pezza da otto real = 20 soldi.
1 soldo..... = 12 denari di pezza.

Principal Tuscan Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. Value.* £.	s.	d.
The zecchini.....	B.	0	1¾	0	2	6	0	9	7½
Half ditto.....	B.	0	1¾	0	1	3	0	4	9¾
Quarter ditto.....	B.	0	1¾	0	0	15	0	2	7¾

Principal Silver Coins.

		oz.	dwt.						
The francisconi, or Tuscan crown of Ferdinand III.....	W.	0	5	0	17	12	0	4	4¾
Ditto.....do. Leopold....	W.	0	4	0	17	15	0	4	5¼
Scudo, or crown of Louis I.....	W.	0	5	0	17	12	0	4	4¾

Of these there are halves of proportionate value.

It Exchanges with	*Quotations 5th Dec. 1827.*
Amsterdam, giving 1 pezza d. o. r. for an uncertain number	98¼ of grotes Flemish.
Cadiz } Madrid } .....100 do.....do.....	— dollars of exchange.
Paris..... .... 1 do... .....do.....	— centimes.
Genoa..... 1 do.....do.....	— soldi fuori banco.
Hamburgh..... 1 do.....do.....	88½ grotes Flemish banco.
Lisbon..... 1 do.....do.....	— reas.
London ..... 1 do.....do.....	49¼ pence sterling.
Venice.....100 do.....do.....	121¼ ducats banco.

Usance with

Holland, Spain, Hamburgh, 2 months after date.
London, Lisbon..... 3 do.....do.
Paris..... 1 do.....do.

Days of Grace

Are none here; bills falling due on a holiday must be paid, or protested in default thereof, the day previous; but the Jews are permitted to postpone the payment on *their* holidays, even when two or more occur successively, till the subsequent open day: it must, however, be observed, that the most respectable houses of this persuasion do not avail themselves of such privilege.

EXAMPLES.

Reduce £500. 6*s*. 8*d*. into pezze d. o. r., at the exchange of 48 pence sterling per pezza.

	d.	P.		£.	*s.*	*d.*		P.	*s.*	d.	
As	48	: 1	: :	500	6	8	:	2501	13	4.	Answer.

240

(4 × 12 = 48) 4)120080

12)30020

2501 13 4

Here I multiply the £500 at once by 240 pence, adding to the product 80 pence for the 6*s*. 8*d*. as a shorter mode than first multiplying by 20 and then by 12.

By Decimals.

	£.	P.		£.		P.	*s.*	d.	
As	20	: 1	: :	20/500·333	:	2501	13	4	Answer.

2501·665

20

13·300

12

3·600

Reduce 2501 pezze 13 soldi and 4 denari into sterling money, at the exchange of 48 pence sterling per pezza.

P.	d.		P.	s.	d.		£.	s.	d.	
As 1	: 48	: :	2501	13	4	:	500	6	8	Answer.
240	4		20							
			50033							
			12							
			600400							
			4							
(80 × 3 = 240)			8,0)240160,0							
			3)30020							
			2,0)1000,6	8						
			500	6	8					

Here, instead of multiplying the third term by 48, I adopt the shorter mode of bringing the second term into shillings, and then multiply the third term by 4, which gives me the product in shillings.

By Decimals.

P.	£.		P.	£.	s.	d.	
As 1	: 20	: :	2501·666	: 500	6	8	Answer.
			·20				
			500·33320				
			20				
			6·66400				
			12				
			7·968				

How many pezze shall I receive at Leghorn for £642. 7*s*. 2*d*. at the exchange of 47½ pence sterling per pezza?

Ans. 3245 p. 12 s.

Reduce £976. 14*s*. 2*d*. into pezze, at 48$\frac{1}{16}$ pence sterling per pezza.

Ans. 4877 p. 3s. 9d.

What must be paid in sterling money for a bill drawn from Leghorn for 8461 pezze 10 soldi, at 47$\frac{1}{8}$ pence sterling per pezza?

Ans. £1661. 9*s*.

Reduce 10816 pezze 17 soldi and 10 denari into sterling money, the course of exchange being 47$\frac{3}{8}$ pence sterling per pezza.

Ans. £2135. 4*s*. 2*d*.

What must be paid at Leghorn for a bill drawn from London for £600. 12*s*. 6*d*. at the exchange of 47$\frac{9}{16}$ pence sterling per pezza?

Ans. 3030 p. 15 s.

Reduce 9703 pezze 7 soldi and 9 denari into sterling money, at the exchange of 47$\frac{7}{8}$ pence sterling per pezza.

Ans. £1935. 12*s*. 4*d*.

GENOA

Keeps accounts in livres and centimes.

1 livre = 100 centimes.

N.B. 100 Piedmontese livres = 120 livres fuori banco.

Principal Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Sterling Value.* £.	s.	d.
The quadruple, or 96 livre piece....	W.	0	0½	0	16	4	3	2	5½
Half ditto .. 48.....do.....	W.	0	0½	0	8	2	1	11	2½

Principal Silver Coins.

		oz.	dwt.						
The half scudo or 50 soldi piece....	W.	0	10½	0	10	16	0	2	7

Also ¼, ⅛, and $\frac{1}{16}$ scudo pieces, of proportionate value.

It Exchanges with		*Quotations Sept. 1827.*	
Amsterdam, giving an uncertain number of centimes		209¾	for 1 florin.
Cadiz and Madrid	do. of livres and centimes...	3·70	1 dol. di plata.
Hamburgh	do....centimes	184	1 mark banco.
Lisbon	do.,..livres and centimes...	5·15	1 milrea.
Leghorn	do....centimes	511	1 pezza of 8 reals.
London	do....livres and centimes...	25·12	£1 sterling.
Naples	do....centimes	411	1 ducato del regno.
Paris	do.....do.....	99⅞	1 franc.
Venice	do.....do.....	64¼	1 lira Austriaca.
Vienna and Trieste	do.....do.....	253¼	1 flor. in 20 Xr. Pcc. conv. mo.

Usances and Days of Grace

Are by the code Napoleon abolished.

EXAMPLES.

Reduce £850. 4*s*. into livres and centimes, at the exchange of 25 livres 10 centimes per £ sterling.

£	L. ct.	£.	*s*.	*d*.	Livres.	
As 1	: 25 10	: : 850	4	0	: 21340,02	Answer.
240	100	20			100	
	2510	17004				
		12				
		204048				
		2510				
		2040480				
		1020240				
		408096				
		240)512160480(100			/21340,02	
		480				
		321				
		240				
		816				
		720				
		960				
		960				
		480				
		480				

By Decimals.

£.	L.	£.	Livres.	
As 1	: 25·1	: : 850·2	: 21340·02	Answer.
		25·1		
		8502		
		42510		
		17004		
		21340·02		

Reduce 21340 livres and 2 centimes into sterling money, at the exchange of 25 livres and 10 centimes per £ sterling.

L.	Cs.	£.		L.	Cs.	£.	s.	
As 25	10	: 1	: :	21340	2	: 850	4	Answer.
100				100				
2510				2134002		(850		
				20080				
				12600				
				12550				
				502				
				20				
				10040		(4		
				10040				

By Decimals.

L.	£.		L.	£.	
As 25·1	: 1	: :	21340·02	(850·2	Answer.
			2008		= £850 4 0
			1260		
			1255		
			502		
			502		

Reduce £1000. sterling into livres and centimes, at 25 livres and 12 centimes per £ sterling.

Ans. 25120 livres.

What must be paid in London for 25120 livres, drawn for at the exchange of 25 livres and 12 centimes per £ sterling?

Ans. £1000.

How much shall I receive at Genoa for a bill drawn from London for £79. 2*s*. 6*d*., at 24 livres and 97 centimes per £ sterling?

Ans. 1975 liv. 75 cs.

Reduce 1975 livres and 75 centimes into sterling money, at 24 livres and 97 centimes per £ sterling.

Ans. £79. 2*s*. 6*d*.

How much must be paid in England for a bill drawn for 20084 livres and 20 centimes, at the exchange of 25 livres and 10 centimes per £ sterling?

Ans. £800. 3*s*. 4*d*.

Reduce £800. 3*s*. 4*d*. into livres and centimes, at 25 livres and 10 centimes per £ sterling.

Ans. 20084 liv. 20 cs.

VENICE

Keeps accounts in Austrian livres, soldi, and centesimi.

1 livre = 20 soldi or 100 centesimi.

N.B. 87 lire Italiane = 100 lire Austriache.

Principal Gold Coins.

		Assay.		*Weight.*			*Stg. Value.*		
		car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The sequin	B.	1	3¾	0	2	6	0	9	7½
Quarter do.	B.	1	3¾	0	0	15	0	2	7½

Principal Silver Coins.

		oz.	dwt.						
The silver ducat of 8 lire	W.	1	6½	0	14	12	0	3	1½
Scudo	W.	1	6½	0	18	9	0	3	11½
½, ¼, and ⅛ of these two in proportion.									
Osell	B.	0	2½	0	12	9	0	3	2½

It Exchanges with				*Quot. 25th Nov. 1827.*
Amsterdam, giving 6 Austrian livres for an uncertain number				97½ of deniers Flem. 40 to 1 florin.
Genoa	3	do.	do.	85½ of soldi fuori bo.
Hamburgh	6	do.	do.	88½ of deniers Flem. 32 to 1 mark bo.
Leghorn	100 Austrian soldi		do.	96 of soldi d'oro. 115 to 1 pezza.
London	6 Austrian livres		do.	49 pence sterling.
Naples	3	do.	do.	61½ of grani.
Paris	1	do.	do.	85½ centimes.
Vienna	3	do.	do.	60⅝ kreutzers.

Usance with

Holland and Hamburgh, 2 months after date.

London..... 3.....ditto.

Days of Grace

Are 6, in which Sundays, holidays, and the days when the bank is shut, are not included.

EXAMPLES.

Reduce £500. 10*s.* into livres soldi, &c. at the exchange of 48 pence for 6 livres.

d.	L.	£.	*s.*	L.
As 48	: 6	: : 500	10	: 15015
4 sh.		20		
		10010		
		6		
		4)60060		
		15015		Answer.

By Decimals.

£.	L.	£.	L.
As ·2	: 6	: : 500·5	: 15015
		6	
		·2)3003·0	
		15015	Answer.

Reduce 15015 livres into sterling money, at 48 pence for 6 livres.

L.	*d.*	L.	£.	*s.*
As 6	: 48	: : 15015	: 500	10
			6 × 8 = 48	
		90090		
		8		
		6)720720		
		12)120120		
		2,0)1001,0		
		500	10	Ans.

By Decimals.

L.	£.	L.	£.	*s.*
As 6	: ·2	: : 15015	: 500	4
		·2		
		6)30030		
		500·5 =	500	4 Answer.

Reduce £497. 6*s.* 8*d.* into Venetian money, at the exchange of 46½ pence for 6 livres.

Ans. 15401 liv. 5 s. 4 c.

What is the sterling value of 15401 livres 5 soldi and 4 centesimi, at the exchange of 46½ pence sterling for 6 livres?

Ans. £497. 6*s.* 8*d.*

How many livres, &c. must be paid for £1012. 5*s.* 7*d.* at 46 pence sterling for 6 livres?

Ans. 31688 liv. 14 s. 4 c.

Reduce 31688 livres 14 soldi and 4 centesimi into sterling money, at 46 pence for 6 livres.

Ans. £1012. 5*s.* 7*d.*

A bill is drawn upon Venice for £506. 7*s.* at the exchange of 46¼ pence sterling for 6 livres—how many livres, &c. must be paid for it?

Ans. 15765 liv. 5 s. 3 c.

Reduce 15765 livres 5 soldi and 3 centesimi into sterling money, at 46¼ pence sterling for 6 livres.

Ans. £506. 7*s.*

NAPLES

Keeps accounts in ducati di regno and grani.

1 ducato = 100 grani.

It Exchanges with			*Quotations 20th Nov. 1827.*	
Amsterdam, giving an uncertain number of grains.....			50 $\frac{82}{100}$	for 1 florin.
Cadiz. .... } Madrid... }	.....do.....	.....do.....	——	1 pesoant d. p.
Genoa.....	.....do.....	.....do.....	23 $\frac{82}{100}$	1 lira nuova.
Hamburgh..	.....do.....	.....do.....	44 $\frac{82}{100}$	1 mark banco.
Lisbon.....	.....do.....	.....do.....	——	1 crusade of 400 rs.
Leghorn....	.....do.....	.....do.....	122	1 pezza d. o. r.
London... ..	.....do.....	.....do.....	606	£1. sterling.
Paris.....	.....do.....	.....do.....	23 $\frac{81}{100}$	1 franc.
Venice.....	.....do.....	.....do.....	20 $\frac{82}{100}$	1 Austrian lira.
Vienna... } Trieste... }	.....do.....	.....do.....	60 $\frac{82}{100}$	1 flor. conv. money.

Usance and Days of Grace.

See GENOA.

EXAMPLES.

Reduce £500. sterling into ducati and grani, at the exchange of 38 pence sterling per ducato.

d.	D.	£.	D.	g.	
As 38	: 1	: : 500	: 3157	89	Answer.

240

120000(3157
114

60
38

220
190

300
266

34
100

3400(89
304

360
342

18

By Decimals.

£.	*d.*	£.	D.	g.	
As ·15833	: 1	: : 500	: 3157	96	Ans.

500·00000(3157·96
47499

25010
15833

91770
79165

126050
110831

152190
142497

96930
94998

1932

The result by decimals gives an excess of 7 grani, owing to the first term being a repeating decimal.

Reduce 3200 ducati 50 grani into sterling money, at 600 grani per £ sterling.

Gr.	£.		D.	g.	£.	s.	d.	
As 600	: 1	: :	3200	50	: 533	8	4	Answer.

6,00)3200,50

£533 8 4

By Decimals.

D.	£.		D.		£.	s.	d.	
As 6	: 1	: :	6/3200·5		: 533	8	4	Answer.

533·416
20
8·320
12
3·840

Reduce £750 sterling into ducati and grani, at the exchange of 38½ pence sterling per ducato.

Ans. 4675 d. 33 g.

Reduce 17560 ducati and 93 grani into sterling money, at 604 grani per £ sterling.

Ans. £2907. 8*s.* 9*d.*

What shall I receive at Naples for a bill drawn from London for £820. sterling, at the exchange of 37⅝ pence sterling per ducato?

Ans. 5230 d. 57 g.

How much sterling money must be paid in London for a bill drawn from Naples, in amount 8304 ducati 40 grani, the exchange being 602 grani per £ sterling?

Ans. £1374. 18*s.*

Reduce £313. 9*s.* 4*d.* sterling into ducati and grani, at the exchange of 40⅛ pence sterling per ducato.

Ans. 1874 d. 94 g.

What is the sterling value of 3614 ducati and 17 grani, the course of exchange being 599 grani per £ sterling?

Ans. £603. 7*s.* 5*d.*

PALERMO

Keeps accounts in ounces, tari, and grani.

1 ounce = 30 tari.
1 taro.. = 20 grani.
N.B. 1 scudo = 12 tari.

Principal Gold Coins.

		Assay.		*Weight.*			*Sterling Value.*		
		car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The ounce, or oncia.....	W.	1	0½	0	2	20	0	10	4½

There are double and half ounces, of proportionate value.

Principal Silver Coins.

		oz.	dwt.						
The scudo of 30 tari, of Ferdinand IV.	W.	0	10½	0	16	9	0	4	0
Another do.....do.....do....	W.	1	4	0	17	12	0	3	10¼
There are some weighing 4 grains more.									
The do.....do.....of 1749..	W.	0	8½	0	16	6	0	3	11¼
do.....do.....of Charles	W.	0	9½	0	16	4	0	3	11¼

There are also ½, ¼, ⅛, ⅛ scudi, of proportionate value.

It exchanges with		
Amsterdam, giving an uncertain number of tari.....	——	for 1 florin.
Genoa..... .....do..... of grani.....	——	1 lira f. b.
Leghorn..... .....do..... of tari.....	——	1 pezza d. o. r.
London..... .....do..... .... do.....	——	£1. sterling.
Naples..... 100 scudi for an uncertain number.....	——	of ducati di regno.
Paris..... an uncertain number of grani.....	——	for 1 franc.
Venice..... .....do..... of tari.....	——	1 ducato piccoli.

Usance with

London..... 3 months or 90 days after date.
Most other places..... 21 days after sight.

Days of Grace.

There are none here.

EXAMPLES.

Reduce £640. 13*s*. 4*d*. sterling into ounces, &c. at the exchange of 114 pence sterling per ounce.

d.	Oz.	£.	*s.*	*d.*		Oz.	t.	g.	
As 114	: 1	:: 640	13	4	:	1348	23	3	Answer.

20

12813

12

153760(1348

114

397

342

556

456

1000

912

88

30

2640(23

228

360

342

18

20

360(3

342

18

By Decimals.

£.	Oz.	£.	Oz.	t.	gr.	
As ·475	: 1	:: 640·666	: 1348	23	2	Ans.

475)640·666(1348·770

475

1656

1425

2316

1900

4166

3800

3660

3325

3350

3325

250

30

23·1

20

2

Reduce 1548 ounces 15 tari into sterling money, at 61 tari per £ stg.

T.	£.		Oz.	t.		£.	s.	
As 60	: 1	::	1548	15	:	774	5	Ans.

30

6,0)4645,5

£774 5s.

By Decimals.

Oz.	£.		Oz.
As 2	: 1	::	2)1548·5

774·25

20

5·00

Here the first term or course of exchange being 60 tari, is made the integer or whole number of 2 ounces, 30 tari being the equivalent for 1 ounce.

Reduce £724. 7*s*. 2*d*. sterling into ounces, &c., at the exchange of 115 pence sterling per oz.

Ans. 1511 oz. 21 t. 3 g.

Reduce 8400 ounces 20 tari into sterling money, at 114½ pence sterling per oz.

Ans. £4007. 16*s*. 4*d*.

How many ounces must be paid at Palermo for a bill drawn from London for £1200. sterling, the course of exchange being 116¼ pence sterling per oz. ?

Ans. 2477 oz. 12 t. 6 g.

What is the sterling value of 3706 ounces 17 tari and 12 grani, at the exchange of 61½ tari per £ stg. ?

Ans. £1808. 1*s*. 10*d*.

Reduce £176. 4*s*. 9*d*. sterling into ounces, &c., at the exchange of 113⅞ pence sterling per oz.

Ans. 371 oz. 13 t.

How much must be paid in London for a bill drawn from Palermo for 3504 ounces 29 tari, the course of exchange being 60¾ tari per £ stg. ?

Ans. £1730. 17*s*.

LISBON—OPORTO

Keep accounts in milreas and reas.

1 milrea = 1000 reas.

N.B.—1 crusade of account, used in exchanges, = 400 reas.

Principal Gold Coins.

	Assay.		*Weight.*			*Stg. value.*		
	car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The meia dobra, or Joanese, or piece of 6400 reas .....S.	0	0	0	9	5	1	15	10
The moidore, or piece of 4800 reas ....S.	0	0	0	6	22	1	6	11

Principal Silver Coins.

	oz.	dwt.						
The crusado novo, or piece of 480 reas (average) .....W.	0	9	0	9	9	0	2	3½
The half do..... or do. of 240 W.	0	9	0	4	16	0	1	1½
The 6 vinten piece, or do. of 120 W.	0	9	0	2	12	0	0	7
The 1 do..... or do. of 20 W.	0	5	0	0	10	0	0	1½

They Exchange with		*Quotations 1st Dec. 1827.*
Amsterdam, giving 1 crusade of 400 reas for an uncertain number		38¼ of grotes Flemish.
Genoa	an uncertain number of reas.....	595 for 1 lira nuova.
Hamburgh	1 crusade of 400 reas for an uncertain number.....	35 of grotes Flemish.
Leghorn	an uncertain number of reas	— for 1 pezza d. o. r.
London	a milrea for an uncertain number	48 of pence sterling.
Paris	an uncertain number of reas	595 for 3 francs.
Spain	do.....do.....	— for 1 old pistole of ex.

Payments are made here, when not agreed to the contrary, half in coin and half in paper, which latter is subject to a discount, varying from 10 to 15 per cent, and sometimes more or less.

Usances with

Spain	15 days after sight.
London	30 do. do.
Holland, Germany	2 months after date.
Italy	3 do. do.
France	60 days do.

Days of Grace

Are 15 on local bills and 6 on foreign bills; but if not accepted, must be paid on the day they fall due.

N.B. — The examples being worked like those for Rio de Janeiro, Bahia, &c. will be given under that head, which see.

RIO DE JANEIRO — BAHIA—

AND OTHER PARTS OF BRAZIL,

Keep accounts, as in Portugal, in milreas and reas.

Principal Gold Coins.

		Assay. car. gr.	*Weight.* oz. dwt. gr.	*Stg. value.* £. s. d.
The 4000 reas, or 4 milrea piece	S.	0 0	0 5 4	1 0 1¼

Will average from ¼ to ½ gr. worse.

There are also pieces of 2000 and 1000 reas, proportionate value.

Principal Silver Coins.

		oz. dwt.		
The piece of 3 patacas, or 960 reas	W.	0 8	0 17 6	0 4 2½

There are also pieces of 2, 1, ½ and ¼ patacas, of proportionate value.

They exchange with			*Quotations Oct. 22, 1827.*
London, giving 1 milrea for an uncertain number of pence sterling ...			34
Paris...	an uncertain number of reas for 1 franc		285
Hambro'	do.	1 mark banco	505

Usances

Are none here: bills are usually drawn at 60 or 30 days; sometimes also, but very rarely, 90 days after sight.

Days of Grace

On foreign bills are 15, including holidays and Sundays; and if due on any such day, must be paid, or in default thereof protested, on the previous day.

EXAMPLES.

Reduce £1080. 15*s*. sterling into milreas, &c. at the exchange of 48 pence sterling per milrea.

d. Rs. £. *s.* Ms. rs.
As 48 : 1,000 :: 1080 15 : 5403 750 Ans.

20

21615

12

259380,000(5403,750
240

193
192

180
144

360
336

240
240

0

By Decimals.

£. Rs. £. Ms.
As ·20 : 1·000 :: 1080·75 : 5403·750 Ans.

2,0)1080750·0,0

5403·75,0

Reduce 5403 milreas and 750 reas into sterling money, at the exchange of 48 pence sterling per milrea.

Rs. *d.* Rs. £. *s.*
As 1000 : 48 :: 5403,750 : 1080 15 Ans.

4 × 12 = 48

21615000

12

12)259380000

2,0)2161,5

£1080 15*s*.

By Decimals.

£ *s.*
As 1 : ·20 :: 5403·75 : 1080 15 Ans.

·20

1080·7500

20

15·0

Reduce £620. 8*s*. sterling into milreas, &c., at the exchange of 47½ pence sterling per milrea.

Ans. 3134 ms. 653 rs.

How much shall I receive at Lisbon for £540. 7*s*. 8*d*. sterling, at the exchange of 50¼ pence sterling per milrea?

Ans. 2580 ms. 935 rs.

A bill is drawn from Oporto on London for 8946 milreas and 325 reas, what is its sterling value, at 49⅝ pence sterling per milrea?

Ans. £1849. 16*s*. 9*d*.

What must be paid at Rio de Janeiro for a bill drawn from London for £500 sterling, at the exchange of 51⅛ pence sterling per milrea?

Ans. 2347 ms. 188 rs.

What is the sterling value of a bill drawn from Bahia for 1200 mil. and 650 reas, the course of exchange being 52¼ pence sterling per milrea?

Ans. £261. 7*s*. 10*d*.

How much must be paid at Pernambucco for a bill drawn from London, the amount being £620. 3*s*. 4*d*., and at the exchange of 53⅛ pence sterling per milrea?

Ans. 2801 ms. 694 rs.

BUENOS AYRES

Keeps accounts in hard dollars and reales.

1 hard dollar = 8 reales.

Its coins are the same with those of Spain, as particularised under the head Madrid, &c. which see.

It Exchanges with			*Quot. Aug.* 25, 1827.	
London.....	giving 1 paper dollar for an uncertain number		11	of pence sterling.
Paris.....	do.	do.	1·50	francs & cents.
Rio de Janeiro	do.	do.	333	reas.
Montevideo ...	do.	do.	214	do.
United States of N. Amer.	do.	do.	30	cents.

Usances.

There are none here; bills are generally drawn at 30, 60, and sometimes 90 days after sight.

EXAMPLES.

Reduce £817. 5*s*. sterling into dollars, &c., at the exchange of 44 pence sterling per dollar.

d.	D.	£.	*s.*	D.	r.	
As 44	: 1	:: 817	5	: 4457	6	Ans.

20

16345

12

196140(4457

176

201

176

254

220

340

308

32

8

256(5

220

36

By Decimals.

£.	D.	£.	D.	r.	
As ·18333	: 1	:: 817·25	: 4457	6	Ans.

817·25000(4457·8

73332 8

83930 6·4

73332

105980

91665

143150

128331

148190

146664

1526

Reduce 4457 dollars and 6 reales into sterling money, at the exchange of 44 pence sterling per dollar.

D.	d.		D.	r.		£.	s.	d.	
As 1	: 44	::	4457	6	:	817	5	1	Answer.

8

8

35662

44

142648

142648

8)1569128

12)196141

2,0)1634,5 1

£817 5 1

The excess of 1*d.* in this answer, as compared with the previous example, arises from the fractional differences in the former.

D.	£.		D.		£.	s.	d.	
As 1	: ·18333	::	4457·75	:	817	4	9	Answer.

·18333

1337325

1337325

1337325

3566200

445775

817·2393075

20

4·7861500

12

9·4338000

Here the answer is not quite correct, owing to the second term not being a finite decimal; if worked with more figures, it would have been brought much nearer.

Reduce £1172. 13*s*. 7*d*. sterling into dollars, &c., at the exchange of $45\frac{1}{8}$ pence sterling per dollar.

Ans. 6236 d. $7\frac{3}{4}$ rs.

Reduce 2865 dollars and 7 reales into sterling money, at $46\frac{1}{4}$ pence sterling per dollar.

Ans. £552. 5*s*. 6*d*.

What shall I receive at Buenos Ayres for a bill drawn from London for £600. sterling, at the exchange of $43\frac{7}{8}$ pence sterling per dollar?

Ans. 3282 d. $0\frac{1}{2}$ r.

What is the sterling value of 17643 dollars, drawn from Buenos Ayres on London, at $45\frac{11}{16}$ pence sterling per dollar?

Ans. £3312. 13*s*. 2*d*.

How much shall I receive at Buenos Ayres for a bill drawn from London for £823. 4*s*. at the exchange of $43\frac{1}{8}$ pence sterling per dollar?

Ans. 4581 d. 2 rs.

Reduce into sterling money 7320 dollars and 7 reales, at the exchange of $44\frac{1}{2}$ pence sterling per dollar.

Ans. £1357. 8*s*. 3*d*.

Thus I have considered the calculations of direct exchanges between London and all those foreign parts which are inserted in the London Course of Exchange List; there are, however, some other places with which London occasionally exchanges, as

The East Indies,
The West Indies,
The British Settlements in North America,
The United States of North America,
The New States of South America, late the Colonies of Spain.

Of these I consider it unnecessary to give examples, as a description of the monies in which accounts are kept there; their relative values; and the course of exchange; will, after the reader has become familiar with the examples already given of other exchanges, render the calculations perfectly easy. I therefore proceed to furnish such particulars.

EAST INDIA SETTLEMENTS.

ACCOUNTS are kept differently, and monies are different, in the various settlements.

At Bombay,

In rupees, quarters, and rees,—

1 rupee = 4 quarters.
1 quarter = 100 rees.

And exchanges with London, giving 1 rupee for an uncertain number of shillings and pence sterling.

At Calcutta,

In rupees, annas, and pice: there are here sicca rupees and current rupees,—

1 rupee = 16 annas.
1 anna = 12 pice.
100 sicca rupees = 116 current rupees.

And exchanges with London, giving 1 sicca rupee for an uncertain number of shillings and pence sterling.

At Madras,

In pagodas, fanams, and pice,—

1 pagoda = 36 fanams.
1 fanam = 8 pice.

And exchanges with London, giving 1 pagoda for an uncertain number of shillings and pence sterling.

WEST INDIA SETTLEMENTS.

ACCOUNTS are kept here in pounds, shillings, and pence,—

1 pound = 20 shillings.
1 shilling = 12 pence.

And the exchange with London is effected by giving an uncertain sum of their currency for £100 sterling: thus, about £140 of West India currency are equal to £100 British or sterling.

BRITISH SETTLEMENTS IN NORTH AMERICA.

HERE accounts are kept, and exchanges effected with London, in the same manner as in the West India Settlements.

UNITED STATES OF NORTH AMERICA.

ACCOUNTS are kept here in dollars and cents,—

1 dollar = 100 cents.

And exchange with London at so much above or below par, the par being 40 dollars for £9. sterling;

Amsterdam, giving an uncertain number of cents for 1 florin;

Hamburgh, giving an uncertain number of cents for 1 mark banco;

France, giving an uncertain number of cents for 1 franc.

THE NEW STATES OF SOUTH AMERICA,

Colombia—Mexico—Chili—Peru,

Keep accounts in dollars and reales,—

1 dollar = 8 reales.

And exchange principally with London, giving 1 dollar for an uncertain number of pence sterling.

MONIES, COINS,

AND

MODES OF EXCHANGE,

OF SUNDRY PLACES,

NOT NOTICED IN THE PRECEDING CALCULATIONS.

ANCONA.

Keeps accounts in scudi and bajocchi.

1 scudo = 100 bajocchi,

Also, in scudi, soldi or grossi and denari.

1 scudo = 20 soldi or grossi.

1 soldo = 12 denari.

For exchanges and coins, see ROME.

AUGSBURG

Keeps accounts in guilders or florins, cruitzers, and pfennings.

1 florin = 60 cruitzers.

1 cruitzer = 4 pfennings.

N.B.—1 rix-dollar = 1½ florins.

And Exchanges with		*Par.*	
Amsterdam, giving an uncertain number of rix-dollars		110	for 100 rix-dollars Dutch.
Frankfort a m / Leipzig	do. do.	100	100 do. conv. money.
France	do. of florins	117	300 francs.
Hamburgh	do. rix-dollars	114	100 rix-d. Hamb. b°.
London	do. florins	$94\frac{113}{1000}$	£1. sterling.
Milan	1 florin for an uncertain number	67½	of soldi.
Genoa	1 do. do.	62½	do.
Leghorn	1 do. do.	62	do.
Venice	an uncertain number of rix-drs.	101	for 100 ducats banco.

Principal Gold Coins.

	Assay.		Weight.			Stg. Value.		
	car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The ducat of Bavaria.....B.	1	2¼	0	2	6	0	9	5¼

Principal Silver Coins.

	oz.	dwt.						
The species dollar, or crown of Christian. W.	1	3½	0	18	0	0	3	11⅛
do.....do. of Chas. Theod. W.	1	5	0	18	2	0	3	11
do.....do. of Max. Joseph. W.	0	9½	0	16	4	0	3	11¼

¼ and ⅛ ditto, in proportion.

ARCHANGEL.

See PETERSBURGH.

BARCELONA

Keeps accounts in libras, sueldos, and dineros catalans.

1 libra = 20 sueldos.
1 sueldo = 12 dineros.

BASLE.

See SWITZERLAND.

BERN.

See SWITZERLAND.

BOLOGNA

Keeps accounts in lire, soldi, and denari.

1 lira = 20 soldi.
1 soldo = 12 denari.

The soldi are sometimes called bolognini, and are in fact the bajocchi of Rome.

For exchanges and coins, see ROME.

BREMEN

Keeps accounts in rix-dollars, grotes, and schwares,—

1 rix-dollar = 72 grotes.
1 grote = 5 schwares.

And Exchanges with	*Quotations 24th Oct. 1827.*
Amsterdam, giving an uncertain number of rix-dollars	125½ for 250 florins.
Hamburgh do. ....do.....	133 300 marcs banco.
London ... do. .....do.....	606 £100. sterling.
Paris ..... do. ..... of grotes.....	17¼ 1 franc.

BRUNSWICK

Keeps accounts in rix-dollars, marien groschen, and pfennings,—

1 rix-dollar..... = 36 marien groschen.
1 marien grosch.. = 8 pfennings.

And Exchanges with	
Amsterdam, giving an uncertain number of rix-dollars ...	142 for 250 florins.
Hamburgh do. ....do.	144 300 marcs banco.
London ... do. .....do.	6 £1. sterling.

Principal Gold Coins.

	Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. value.* £.	s.	d.
The pistole, or 5 dollar piece .... W.	0	1	0	4	6½	0	16	4¾
do. 10 do.....W.	0	1¾	0	8	13	1	12	5½
The half-do. of 5 do.....W.	1	3¾	0	4	6	0	16	1¾

Principal Silver Coins.

	oz.	dwt.					
The gulden of Charles ..... W.	1	4½	0	9	0	0	1 11½
do. of 24 marien groschen, or ⅔ rix-dollar .....W.	2	6	0	11	0	0	2 1¼
do. of George William .....W.	2	7	0	11	0	0	2 1
do. of 24 good groschen .....B.	0	15	0	8	8	0	2 3¼
do. of Chas. Wm. Ferdinand .. B.	0	14½	0	8	9	0	2 3¼
The drittel of Charles.....W.	1	4	0	4	12	0	0 11¼

CAGLIARI.

See SARDINIA.

CANARY ISLANDS.

See TENERIFFE.

CEPHALONIA.

See ZANTE.

CONSTANTINOPLE

Keeps accounts in piasters, paras, and aspers,—

1 piaster ....= 40 paras.
1 para .....= 2½ good or 3 curr. aspers.
1 good asper = 1⅓ curr. asper.

And Exchanges with			*Quotations*, 1827.	
Amsterdam, giving an uncertain number of paras.....			197½ for	1 florin.
Leghorn ...	do.	do.	483	1 pezza d. o. r.
London.....	do.	of piasters	59⅛	£1. sterling.
Marseilles...	do.	...of paras.....	93½	1 franc.
Venice.....	do..	do.	80	1 Austrian lira.
Vienna.....	do.	do.	238	1 florin conv. m.

Principal Gold Coins.

	Assay.		*Weight.*			*Stg. Value.*		
	car.	gr.	oz.	dwt.	gr.	£.	*s.*	*d.*
The chequin.....B.	1	3¾	0	2	6	0	9	7½
The sultany .....B.	1	0¾	0	2	6	0	9	3¼
The piece of 80 aspers .....W.	2	2½	0	0	13	0	1	9½

Principal Silver Coins

Are of various denominations, from 5 to 100 paras each, but I have not been able to procure their weights and fineness sufficiently accurate to be relied upon.

COPENHAGEN

Keeps accounts in rix-dollars, marks, and shillings,—

1 rix-dollar = 6 marks.
1 mark ....= 16 schillings.

And Exchanges with			*Par.*	
Amsterdam, giving an uncertain number of rix-dollars			116⅝	for 100 rix-doll. Dutch.
Hamburgh	do.	do.	123$\frac{434}{1000}$	100 rix-doll. banco.
London ...	do.	do.	5$\frac{442}{1000}$	£1. sterling.
Paris	do.	of shillings	21	1 franc.

Principal Gold Coins.

	Assay.		*Weight.*			*Stg. value.*		
	car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The ducat of Frederic ..... W.	0	3½	0	2	0	0	7	5½
do. of Christian VII. ..... W.	0	3¾	0	2	2	0	7	8½

Principal Silver Coins.

	oz.	dwt.					
The species rix-dollar of 1797..... W.	0	14	0	18	18	0	4	4
The rix-dollar of Christian VII. ..... W.	0	14	0	18	14	0	4	3¾
The crown dollar, or 4 mark piece .... W.	0	14	0	12	9	0	2	10½
The 2 mark piece..... W.	3	4	0	7	0	0	1	2½
The mark piece..... W.	3	1	0	4	0	0	0	8

DANTZIC

Keeps accounts in guldens or florins, groschen, and pfennings.

1 gulden .. = 30 groschen.
1 grosch .. = 18 pfennings.

And Exchanges with			*Par.*	
Amsterdam, giving an uncertain number of groschen			413$\frac{7}{10}$	for £1. Flemish banco.
Hamburgh	do.	do.	186¾	1 rix-doll. banco.
London.....	do.	of florins	26$\frac{4}{17}$	£1. sterling.

DRESDEN.

See LEIPZIG.

FLORENCE

Keeps accounts in lire, soldi, and denari,—

1 lira = 20 soldi.
1 soldo = 12 denari.

And exchanges with most foreign places, like Leghorn.

For principal gold and silver coins, see LEGHORN.

GOTTENBURG.

See STOCKHOLM.

HANOVER

Keeps accounts in rix-dollars, marien groschen, and pfennings,—

1 rix-dollar..... = 36 marien groschen.
1 marien grosch.. = 8 pfennings.

KONIGSBERG

Keeps accounts in guldens or florins, groschen, and pfennings.

1 gulden.. = 30 groschen,
1 grosch.. = 18 pfennings,
} Prussian money.

And Exchanges with			*Par.*	
Amsterdam, giving an uncertain number of groschen			310$\frac{1}{2}$	for £1. Flem. cur.
Hamburgh	do.	do.	136$\frac{1}{2}$	1 rix-dollar banco.
London.....	do.	of guldens ...	19$\frac{1}{2}$	£1. sterling.

For the principal gold and silver coins, see BERLIN.

LEIPZIG

Keeps accounts in rix-dollars, groschen, and pfennings,—

1 rix-dollar = 24 groschen.
1 grosch. . = 12 pfennings.

And Exchanges with		*Par.*	
Amsterdam, giving an uncertain number of rix-dollars		136¾	for 100 rix-doll. Dutch.
Augsburg	....do....do	100	100 rix-doll. conv. money.
Frankfort $\frac{a}{m}$	....do. with some ⅛ disct.	61¼	1 Carolin.
France	....do....do	77	100 francs.
Hamburgh	....do....do	144¾	100 rix-doll. banco.
London	....do....do	6 11/12	£1. sterling.
Vienna	....do....do	46	100 rix-doll. bank notes.

Principal Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. Value.* £.	s.	d.
The pistole, or 5 dollar piece	W.	0	2¾	0	8	13	1	12	0½
Half ditto, or 2½ ditto	W.	0	2¾	0	4	6½	0	16	0¼

Principal Silver Coins.

		oz.	dwt.						
The species dollar	W.	1	5	0	18	0	0	3	11
Half ditto	W.	1	5	0	9	0	0	1	11½
Drittle	W.	1	5	0	4	12	0	1	0½

MADEIRA

Keeps accounts as in Portugal, in reas and milreas; but in exchanges it calculates in the Spanish dollar, which is current there at 850 reas.

It exchanges principally with London in the Spanish dollar, considering the par to be *5s. 6d.* sterling per dollar, in which there is, according to the state of trade between the two countries, either a premium or a discount: at present, the premium in favour of London is about 38 per cent.

MAJORCA

Keeps accounts in libras, reales, sueldos, and dineros.

1 libra.. = 10 reales.
1 real .. = 20 sueldos.
1 sueldo. = 12 dineros.

MALTA

Keeps accounts in scudi, tari, and grani.

1 scudo = 12 tari.
1 taro.. = 20 grani.

Principal Gold Coins.

	Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. Value.* £.	s.	d.
The zecchine.....	0	0	0	0	0	0	9	6
2 zecchine piece, and the 4 do..	0	0	0	0	0	0	0	0

Principal Silver Coins.

		oz.	dwt.					
The 30 tari piece of Ferd. Hompesch	W.	1	1½	0	19	6	0	4	3
2 scudo piece of Eman. Rohan..	W.	2	4	0	15	12	0	3	0¼
30 tari piece of do...do....	W.	1	3½	1	0	12	0	4	6¼
Scudo.....	W.	1	1½	0	8	5	0	1	9¾

MILAN

Keeps accounts in lire, soldi, and denari,—

1 lira.. = 20 soldi.
1 soldo. = 12 denari.

And Exchanges with		*Par.*	
Amsterdam, giving an uncertain number of soldi.....		55$\frac{5}{12}$	for 1 florin.
Augsburgh..	do. do.	67½	1 flor. currency.
Genoa.....	do. do.	86¼	4 lire f. banco.
Hamburgh..	do. do.	48⅜	1 mark banco.
Leghorn.....	do. do.	125⅛	penza d. o. r.
London.....	do. of lire.....	31$\frac{19}{17}$	£1. sterling.
Paris.....	do. of soldi imp....	55¼	3 francs.
Rome.....	do. of soldi.....	141$\frac{7}{8}$	1 scudo.
Venice.....	do. do.	84⅜	1 duc. currency.
Vienna.....	See Augsburgh		

MINORCA

Keeps accounts in libras, sueldos, and dineros catalans.

1 libra.. = 20 sueldos.
1 sueldo. = 12 dineros.

MOREA.

See CONSTANTINOPLE.

NUREMBERGH

Keeps accounts in guldens or florins, cruitzers, and pfennings.

1 gulden.. = 60 cruitzers.
1 cruitzer... = 4 pfennings.
N.B. 1 rix-dollar = 1½ guldens.

And Exchanges with			*Par.*	
Amsterdam, giving an uncertain number of rix-dollars.....			136¾	for 250 florins.
Hamburgh..	.....do.....	.....do.....	144½	300 marks bo.
France.....	.....do.....	.....do.....	77	300 francs.
London.....	.....do.....	.....do.....	6 374/1000	£1. sterling.
Venice.....	.....do.....	.....do.....	100¼	500 lire picco.

For principal coins, see AUGSBURG.

OLDENBURGH

Keeps accounts in rix-dollars, groots, and schwaars.

1 rix-dollar = 72 groots.
1 groot.... = 5 schwaars.

OSNABURGH

Keeps accounts in rix-dollars, shillings, and pfennings; also rix-dollars, marien groschen, and pfennings.

1 rix-dollar..... = 21 shillings.
1 shilling..... = 12 pfennings.

1 rix-dollar..... = 36 marien groschen.
1 marien grosch .. = 7 pfennings.

And Exchanges with		*Par.*
Amsterdam, giving an uncertain num. of rix-doll.		136⅔ for 100 rix-doll. Dutch.
Hamburgh..	.....do.....do.	144¼ 100 rix-doll. banco.

PATRASSO.

See MOREA.

PRAGUE

Keeps accounts in rix-dollars, cruitzers, and pfennings.

1 rix-dollar.. = 60 cruitzers.
1 cruitzer..... = 4 pfennings.

For exchanges and coins, see VIENNA.

RIGA

Keeps accounts in rix-dollars and groschen, either alberts or currency.

1 rix-dollar.. = 90 groschen.
1 do. alberts.. = 1½ rix-dollar currency.
90 groschen do. = 120 groschen do.

And Exchanges with		*Par.*
Amsterdam, giving 100 rix-doll. alberts for an uncertain number.....		101⅝ of rix-dolls. Dutch.
Dantzic ...	1 do.....do.....	175 groschen.
Hamburgh..	an uncertain num. of rix-doll. alberts..	104¼ for 100 rix-dolls. bo.
Konigsberg	1 rix-doll. alberts for an uncertain num.	131¼ of groschen.
London.....	an uncertain num. of groschen alberts.	406⅔ for £1. sterling.

It also sometimes exchanges like Petersburgh.

ROME

Keeps accounts in scudi and bajocchi,—

1 scudo = 100 bajocchi.

And Exchanges with			*Par.*	
Amsterdam, giving an uncertain number of bajocchi.....			39	for 1 florin.
Ancona.....	.....do.....	scudi.....	100	100 scudi.
Augsburg...	.....do.....	bajocchi	47⅞	1 flor. conv. mo.
Bologna.....	.....do.....	scudi.....	102½	100 scudi of ex.
Florence....	.....do.....	scudi d'oro...	75$\frac{84}{100}$	100 scudi d'oro.
Genoa.....	1 scudo for an uncertain number.....		131½	soldi f. banco.
Leghorn.....	an uncertain number of bajocchi.....		88$\frac{33}{100}$	1 pezza d.o.r.
Milan.....	.....do.....	scudi d'oro....	76$\frac{92}{100}$	100 scudi imp.
Naples.....	100 scudi for an uncertain number....		129½	of duc. d. r.
Paris.....	1 scudo.....do.....		5$\frac{443}{1000}$	of francs.
Venice.....	an uncertain number of scudi d'oro...		60$\frac{48}{100}$	for 100 duc. bo.

Principal Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. Value.* £.	s.	d.
The zecchine.....	B.	1	3¾	0	2	6	0	9	7½

½ and ¼ ditto, of proportionate value.

Principal Silver Coins.

		oz.	dwt.						
The scudo.....	W.	0	8	0	17	0	0	4	2½
Mezzo, or half do.....	W.	0	5	0	8	12	0	2	1¼
Scudo of Pius VI.....	W.	0	5	0	17	0	0	4	3½
Papetto.....	W.	0	5	0	3	12	0	0	10½

SARDINIA

Keeps accounts in lire, soldi, and denari of Sardegna.

1 lira.. = 20 soldi.
1 soldo. = 12 denari.

Principal Gold Coins.

		Assay.		*Weight.*			*Stg. Value.*		
		car.	gr.	oz.	dwt.	gr.	£.	*s.*	*d.*
The pistole	W.	0	1½	0	5	20½	1	2	4
Half ditto	W.	0	1½	0	2	22¼	0	11	2

Principal Silver Coins.

		oz.	dwt.						
The scudo	W.	0	7	1	2	16	0	5	7¼
Half do.	W.	0	7	0	11	8	0	2	9¾

SMYRNA.

See CONSTANTINOPLE.

STRALSUND

Keeps accounts in rix-dollars, schillings, and pfennings,—

1 rix-dollar = 48 schillings.
1 schilling = 12 pfennings.

Also in guldens, schillings, and pfennings,—

1 gulden = 24 schillings.
1 schilling = 12 pfennings.

And Exchanges with	*Par.*
Amsterdam, giving an uncertain number of rix-dollars....	127⅛ for 250 florins.
Hamburgh.. ..... do.....do.....	135⅛ 300 marks bco.
Stockholm... ..... do..... .....do....	136⅛ 100 species doll.

SWITZERLAND

Keeps accounts in guldens or florins, batzen or cruitzers, and hellers.

1 florin.. = 15 batzen or 60 cruitzers.
1 batzen.. = 4 cruitzers.
1 do..... = 12 hellers.
1 cruitzer = 8 do.

Principal Gold Coins.

		Assay.		*Weight.*			*Stg. Value.*		
		car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The pistole of Geneva.....	W.	0	0½	0	4	7	0	16	7

Principal Silver Coins.

		oz.	dwt.						
The patagon of Basle.....	W.	1	3	0	16	2	0	3	6½
Ditto of Zurich.....	W.	0	13	0	18	1	0	4	2½
Ditto of Berne	W.	0	7	0	19	0	0	4	8¼
Half dittos in proportion.									
40 batzen piece.....	W.	0	8½	0	18	20	0	4	7½
10 batzen piece.....	W.	1	1½	0	5	0	0	1	1¼
5 ditto do	W.	3	6	0	3	0	0	0	6
20 cruche piece of Berne.....	W.	2	3½	0	2	9	0	0	5¾
10, 40, and 80 ditto, in proportion.									

STOCKHOLM

Keeps accounts in rix-dollars species, schillings, and pfennings,—

1 rix-dollar = 48 schillings.
1 schilling = 12 pfennings.

And Exchanges with		*Par.*
Amsterdam,	giving an uncertain num. of shil. species	44¾ for 1 rix-doll. Dutch.
Spain.....	.....do.....do.....	46$\frac{96}{100}$ 1 duc. of ex.
France.....	.....do.....do.....	25$\frac{313}{1000}$ 3 francs.
Hamburgh...	.....do.....do.....	47⅜ 1 rix-doll. banco.
Copenhagen.	100 rix-doll. for an uncertain num.	124$\frac{11}{15}$ of rix-doll. Danish cur.
Lisbon.....	an uncertain num. of schil. species	20$\frac{693}{1000}$ for 1 crus. of 400 rs.
Leghorn.....	.....do.....do.....	40$\frac{508}{1000}$ 1 pezza d. o. r.
London.....	.....do..... of rix-doll. species	4$\frac{783}{1000}$ £1. sterling.

Principal Gold Coins.

		Assay.		*Weight.*			*Stg. value.*		
		car.	gr.	oz.	dwt.	gr.	£.	s.	d.
The ducat.....	B.	1	3	0	2	5	0	9	4

Principal Silver Coins.

		oz.	dwt.					
The species rix-dollar.....	W.	0	15	0	18	18	0	4	3¾
Rix-dollar of Charles XII.....	W.	0	14	0	18	18	0	4	4¼
Ditto of Gustavus IV.....	W.	0	14	0	18	18	0	4	4¼
Caroline.....	W.	0	15	0	6	6	0	1	5
Half ditto, in proportion.									

TENERIFFE

Keeps accounts in pesos or dollars, and eighths and fifteenths of ditto.

It exchanges with London, giving a peso for an uncertain number (during 1827, about 40) of pence sterling.

VALENCIA

Keeps accounts in libras, sueldos, and denari.

1 libra.. = 20 sueldos.

1 sueldo. = 12 denari.

Also in reales de plata, nuevas, and dineros.

1 real... = 24 dineros.

For exchanges and coins, see MADRID, &c.

WARSAW

Keeps accounts in guldens or florins, groschen, and pfennings,—

1 gulden.. = 30 groschen.
1 grosch.. = 18 pfennings.
N.B. 1 ducat.... = 3 dollars.
1 dollar.... = 6 guldens.

And Exchanges with		*Par.*
Amsterdam, giving	1 ducat for an uncertain number...	105 of stivers.
Hamburgh..	.....do.....do.....	6 marks banco, and 1⅛.
London.... .	an uncertain number of guldens...	39½ for £1. sterling.
Paris.....	1 ducat for an uncertain number...	11 of francs.
Vienna	1 ...do.....do.....	4½ florins curr.

Principal Gold Coins.

		Assay. car.	gr.	*Weight.* oz.	dwt.	gr.	*Stg. value.* £.	s.	d.
The ducat.....	B.	1	7						

Principal Silver Coins.

		oz.	dwt.						
The dollar of Stanislaus.....	W.	1	4½	0	18	0	0	3	11¼
The gulden or florin of do.....	W.	4	2	0	6	0	0	0	10½

WURTEMBERG

Keeps accounts in guldens or florins, cruitzers, and hellers.

1 gulden.. = 60 cruitzers.
1 cruitzer.. = 4 hellers.

And Exchanges with		*Par.*	
Amsterdam,	giving an uncertain number of guldens.	98$\frac{5}{8}$	for 100 florins, Dutch.
Augsburg.....	.....do.....do.....	120	100 do. currency.
Basle	.....do.....do.....	101$\frac{1}{32}$	100 do. in Carolines.
Frankfort $^{a}/_{m}$	.....do.....do.....	100	100 do. do.
Hamburgh	.....do.....do.....	260$\frac{1}{2}$	300 marks banco.
Leipsig	.....do.....do.....	180	100 rix-dolls. spec.
London.....	.....do.....do	11$\frac{5}{17}$	£1. sterling.
Paris.....	.....do.....do.	138$\frac{1}{2}$	300 francs.
Vienna	....do.....do.....	48	100 fl. in bk. notes

ZANTE

Keeps accounts in reali and soldi or aspri.

1 realo = 100 soldi.

Also in reali, lire, and soldi or aspri.

1 realo = 10 lire.
1 lire = 10 soldi.

OF LOGARITHMS.

As in the following parts of this Work logarithms can be beneficially used, I shall give a brief account of their nature and application, before I proceed to the consideration of indirect exchanges, arbitrated exchanges, and operations in coin and bullion.

Logarithms are artificial numbers, invented as substitutes for natural numbers, by the use of which, arithmetical and mathematical calculations are very much shortened; for the same result is produced by adding and subtracting logarithmal numbers, as by multiplying and dividing their corresponding natural numbers. Their advantage must, therefore, be obvious, in calculations where there are several multipliers and multiplicands, divisors and dividends, requiring several operations; whilst, by this mode, the corresponding logarithmal numbers of the multipliers and multiplicands are added together for a general product or dividend, and those of the several divisors for a general divisor: then the one aggregate number of logarithms being subtracted from the other, yields a logarithm corresponding to the general or aggregate quotient. Thus, suppose I required to know the quotient that would result from multiplying the natural numbers, 250, 604, 493, 1120, and 9, into each other for a dividend; and 27, 314, 46, and 2126, into each other for a divisor, —the calculation would be somewhat long, whilst, by using their corresponding logarithmal numbers, as con-

tained in the Tables annexed to this Work, it would be comparatively very short, as I proceed to shew:—

Multipliers for a Divisor.	*Multipliers for a Dividend.*
314	250
27	604
2198	1000
628	15000
8478	151000
46	493
50868	453
33912	1359
389988	604
2126	74443000
2339928	1120
4679856	893316
779976	74443
829114488	83376160000
	9
	750385440000(905 Quotient.
	7462030392
	4182400800
	4145572440
	36828360

By Logarithms.

Divisor.		Dividend.	
Nat. No.	Log.	Nat. No.	Log.
27 =	1·43136	250 =	2·39794
314 =	2·49693	604 =	2·78104
46 =	1·66276	493 =	2·69285
2126 =	3·32756	1120 =	3·04922
	8·91861	9 =	0·95424
			11·87529
			8·91861
			2·95668

I have here for a result the logarithm 2·95568, which, seeking in the Table, I find the logarithm 2·95665 (quite near enough, being within $\frac{3}{100000}$ parts), and opposite to it the natural number 905 for my quotient, which is the same as that produced by the usual mode of calculation with the natural numbers.

In working questions which contain fractional numbers, the advantage of using logarithms is still greater, as will appear by the following example:—

What is the quotient of $6\frac{9}{32} \times 20\frac{5}{12} \times 61\frac{1}{16} \times 36\frac{5}{24} \times 217$, divided by $18\frac{7}{12} \times 49\frac{3}{16} \times 25\frac{5}{24} \times 5$?

By Natural Numbers.

For a dividend, $6\frac{9}{32}=\frac{221}{32}$, $20\frac{5}{12}=\frac{245}{12}$, $61\frac{1}{16}=\frac{977}{16}$, $36\frac{5}{24}=\frac{869}{24}$, $217=\frac{217}{1}$

32	12	16	24
192	245	367	149
29		61	72
221		977	869

For a divisor $18\frac{7}{12}=\frac{223}{12}$, $49\frac{3}{16}=\frac{787}{16}$, $25\frac{5}{24}=\frac{605}{24}$, $5=\frac{5}{1}$

12	16	24
223	297	105
	49	50
	787	605

Then $\frac{221}{32} \times \frac{245}{12} \times \frac{977}{16} \times \frac{869}{24} \times \frac{217}{1} = \frac{\text{Dividend. } 9975448528045 \text{ new num.}}{147456 \text{ new denom.}}$

32
12

384
16

2304
384

6144
24

24576
12288

147456

221
245

1105
884
442

54145
977

379015
379015
487305

52899665
869

476096985
317397990
423197320

45969808885
217

321788662195
45969808885
91939617770

9975448528045

Divisor.

Then $\frac{223}{12} \times \frac{787}{16} \times \frac{605}{24} \times \frac{5}{1} = \frac{530890525}{4608}$ new numerator. new denominator.

12
16

192
24

768
384

4608

223
787

1561
1784
1561

175501
605

877505
10530060

106178105
5

530890525

Then $\frac{9975448528045}{147456} \div \frac{530890525}{4608} =$

Quotient.

$$\frac{9975448528045}{147456} \times \frac{4608}{530890525} = \frac{45966866817231360}{78282993254400} = 587$$

530890525
147456

3185343150
2654452625
2123562100
3716233675
2123562100
530890525

78282993254400

9975448528045
4608

79803588224360
598526911682700
39901794112180

)45966866817231360(587$\frac{1}{5}$ nearly
391414966272000

682537019003136
626263946035200

562730729679360
547980952780800

14749776898560

By Logarithms.

Divisor.			Dividend.		
Nat. No.		Log.	Nat. No.		Log.
$18\frac{7}{12}$	=	1·26912	$6\frac{2}{32}$	=	0·83924
$49\frac{3}{16}$	=	1·69185	$20\frac{5}{12}$	=	1·30999
$25\frac{5}{24}$	=	1·40157	$61\frac{1}{16}$	=	1·78577
5	=	0·69887	$36\frac{5}{24}$	=	1·55881
		5·06141	217	=	2·33646
					7·83027
					5·06141
					2·76886=587 quotient.

The result here is the logarithm 2·76886, and looking into the Table, I find the nearest logarithm thereto 2·76864, and opposite to it the corresponding natural number 587, which is near enough to exhibit the advantage of this mode of calculation, and for most arithmetical purposes; there are, however, Tables of logarithms calculated and published for every sort of integer, fraction, or mixed numbers, and examples worked by them will yield results accurate to the minutest fractional part.

It is unnecessary, in a work of this nature, to enter into an historical account of the invention of logarithms, or to furnish a scientific disquisition on their various properties; but some further notice of them, beyond the preceding remarks, will perhaps be useful; and in giving this, I shall be as brief as I can without becoming obscure.

If I take any series of numbers in arithmetical progression, commence with 0, and place under them a corresponding series of geometrical numbers, making 1 the first, the former series will be logarithms to the corresponding numbers in the latter, as will be seen by the following example:—

Arithmetical series,	0, 1, 2, 3, 4, 5, 6, 7, 8, 9,	logarithms.
Geometrical series,	1, 2, 4, 8, 16, 32, 64, 128, 256, 512,	corresponding natural nos.

Here 0, 1, 2, 3, &c. are the logarithms of 1, 2, 4, 8, &c., shewing obviously that addition in logarithms answers to multiplication in natural numbers; for, if I add the logarithms 2 and 5 together, the sum will

be 7, answering to the logarithm of 128, which is obtained by multiplying the corresponding natural numbers of the logarithms 2 and 5, namely, 4 and 32 ($4 \times 32 = 128$).

In the same manner, subtraction of logarithms answers to division of their corresponding natural numbers: thus, the difference between the logarithms 4 and 7 is 3, and the corresponding natural number of the logarithm 3 is 8; now the quotient of the natural number 128, divided by the natural number 16 (which are the corresponding natural numbers to the logarithms 4 and 7), is also 8 ($128 \div 16 = 8$).

The logarithms of natural numbers may be called the indices of the latter: thus, in the foregoing series, 5 would be the index of 32, and 8 of 256, &c.; and they are sometimes written thus, 32^5, 256^8: the same indices will serve for any geometrical series; but the logarithms most frequently used are those increasing in a tenfold proportion: thus,—

0,	1,	2	3,	4,	5,	6,	logarithms.
1,	10,	100,	1000,	10000,	100000,	1000000,	corresponding natural numbers.

7,	8,	9,	&c.	logarithms.
10000000,	100000000,	1000000000.		corresponding natural numbers.

Now it must be obvious that the logarithm of any number between 1 and 10 must be greater than 0 and less than 1; between 10 and 100, greater than 1 and less than 2; and so on,—which difference is indicated by decimal parts, and which, for the purposes of arithmetic, are seldom extended beyond five places

of decimals: thus, the logarithm of 2 is 0·30103, and of 12, 1·07918: the whole number is called the index of the logarithm, and is frequently omitted in the working with logarithms, the decimal part being only written down; the index is always one less than the number of figures composing the whole number:—thus, the logarithmal index of 10, 12, 18, will be 1; of 256, 784, 999, will be 2; and so on.

Logarithms are either positive or negative.

Positive Logarithms are the logarithms of integers or whole numbers, or of mixed numbers; that is, of an integer and a fraction: thus,

Logarithms..	1·07918, 2·66197.
Nat. numbers	12, $46\frac{1}{12}$.

are positive logarithms.

Negative Logarithms are the logarithms of numbers less than an integer: thus,

Logarithms	− 9·96221, − 1·39445
Nat. numbers	$\frac{11}{12}$ ·248

are negative logarithms. The indices of negative logarithms are always preceded by the sign minus −.

When negative logarithms are required to be used with positive logarithms, the former must be deducted from the latter in multiplication, to give the product; and in division they must be added to each other to yield the quotient: thus,—

Multiply 120 by $\frac{3}{4}$

Log. of 120	= 2·07918
$\frac{3}{4}$	= − 12494
	1·95424 = 90

Divide 120 by $\frac{1}{8}$

Log. of 120	= 2·07918
$\frac{1}{8}$	= − 05799
	2·13717 = 137½.

How to find the Logarithm of a Decimal when not contained in the Tables.

RULE.—Work precisely as if the decimal were a whole number, observing that the index of the logarithm must be always one less than the number of figures in the integral part of the decimal: thus, if I required the logarithm of the decimal 2·45, I look in the Table for the natural number 245, and find its corresponding logarithm to be 2·38916: there being one figure in the integral part of the decimal 2·45, I make the index of the logarithm one less, and have consequently 0·38916, as the corresponding logarithm of the decimal 2·45. If the decimal be less than an integer, the logarithm is found in the same manner, but it will be a negative logarithm.

How to find the Logarithm of a Vulgar Fraction.

RULE.—Reduce it to a decimal fraction, and proceed as directed in the last rule; or subtract the logarithm of the numerator from the logarithm of the denominator,—the difference will be the required logarithm of the fraction: thus, of $\frac{5}{6}$

The logarithm of 5 is 0·69897.
The do.... of 6 is 0·77815.

Difference, or log. of $\frac{5}{6}$ is — 9·92082.

But of course a negative logarithm, and the index marked by the sign of minus.

OF

THE TABLES OF LOGARITHMS

ANNEXED TO THIS WORK.

THE set of Logarithmal Tables annexed to this Work commence with the number 1, proceeding by twentieth parts to $28\frac{19}{20}$; — they then recommence with the number 1, and proceed by thirty-second parts, and also by twelfth parts, as far as $41\frac{31}{32}$, and $41\frac{11}{12}$; — thence by sixteenth parts to $101\frac{15}{16}$; — thence by eighth parts to $221\frac{7}{8}$; — then by fourth parts to 300, and afterwards by whole numbers to 5000 — a range of numbers amply sufficient for any of the operations contemplated in this publication.

For a more speedy reference, I have placed on the left corner of the top of each page of the Tables the first and last natural numbers contained therein; and on the right hand corner the first and last logarithmal numbers: such page, therefore, will contain all the natural numbers and logarithms between these extremes.

The index of the logarithms is only placed to the first logarithm immediately under, or opposite to, the corresponding natural number, but belongs equally to every logarithm in the same column, until interrupted by a different index; and in order to strike the sight more quickly, I have, subsequent to the

logarithms of $7\frac{19}{20}$ and $6\frac{11}{12}$, placed only the last three figures of the decimal part of the logarithm when the two first would be the same as in the preceding logarithm: thus, in looking for the logarithm for $8\frac{1}{20}$, will be found only the figures 580; but the index 0, and the two first figures of the decimal part ·90 of the preceding logarithm, belong equally to it, and taken together will read 0·90580, which is the logarithm for $8\frac{1}{20}$.

When the logarithm of any natural whole number be required between 1 and 221, seek such number in the horizontal lines of whole numbers, and immediately under it will be found its corresponding logarithm: thus, if I want the logarithm of 84, I find it in the 12th Table, in the first column on the second horizontal line of natural numbers, and immediately under it 1·92428, which is its corresponding logarithm.

When the logarithm of a mixed number is required between $1\frac{1}{20}$ and $221\frac{7}{8}$, both inclusive, seek the natural whole number as before, and then in the first column of the table the fractional part; pass the eye along the horizontal line opposite thereto until you come to the column over which is the natural whole number; and the figure under it on the line even with the fractional part will be the logarithm corresponding to the given natural mixed number: thus, looking for the logarithm for $38\frac{5}{8}$, or $38\frac{20}{32}$, I find in the eighth page of the Tables the whole number 38 over the fourth column of logarithms, and the fractional part $\frac{5}{8}$, or $\frac{20}{32}$, in the twenty-first line, under the word fraction; and passing my eye along in an horizontal line until I come to the column with 38 over it, I find 1·58652, which is the corresponding logarithm to $38\frac{5}{8}$.

These Tables will be found to meet the divisions of the monies in which the various quotations of the rates of exchange in different countries are made. Thus, the first Table being in twentieth parts, serves for the quotation of the course of exchange between London and Amsterdam; for if I want the corresponding logarithm to 12 florins 5 stivers, I look for that of $12\frac{5}{20}$ (each stiver being a twentieth part of a florin), and find it to be 1·08814. The third to the eighth containing twelfth parts, serves for the exchange between London and Hamburgh, being in shillings and grotes Flemish: thus, if I require the logarithm for 34 shillings 7 grotes, I look for $34\frac{7}{12}$ (each grote being the twelfth part of a shilling), and find 1·53887, —and so on for other countries.* Where the quotations, as upon Petersburgh, Madrid, Lisbon, &c. are in fractional parts, as $9\frac{3}{32}$, $34\frac{5}{8}$, $50\frac{1}{4}$; the logarithms will be found in the columns as previously adverted to; and in places, as in France, where the division of money is in decimal parts, the natural number of the course of exchange, if consisting of a whole number and decimal parts, must have its corresponding logarithm sought as if all the figures of the quotation constituted a whole number, attention being paid that the logarithm receive the proper index, as directed at page 190: thus, if I want the logarithmal number corresponding to 25 francs 50 centimes, I look for the logarithm of 2550, and find it to be 3·40654; but as the quotation was 25·50, and consequently only two

* When the quotations are in marks and shillings, as is now the case between London and Hamburgh, then the Tables with sixteenth parts must be used, 1 mark having 16 shillings.

figures in the whole number, the index must be 1, and the logarithm corresponding to 25·50 will be 1·40654.

When it is required to find in the Tables the natural number corresponding to a given logarithm, look for the index and two first figures of the decimal parts, and follow downwards until you come to the last three figures nearest to the remaining three figures of the given logarithm, and over it, as far as 2·34611, will be the natural whole number, and the fractional part, if any, on the column of fractions to the left, on a right line with the given logarithm: thus, if I seek the natural number corresponding to the logarithm 1·54247, I seek for the index, &c. 1·54, and find it in the last column of the seventh Table, and proceeding downwards, the nearest to the remaining three figures, or 247, are 251; over the column is 34, and to the left, horizontally with 251, the fractional part $\frac{1}{8}$, making $34\frac{1}{8}$ the natural number sought.

If the logarithm be 2·34635, or upwards, the nearest corresponding natural number will be immediately to the left of it.

The manner of using the per-centage Table of logarithms will be explained in a subsequent part.

OF INDIRECT EXCHANGES.

INDIRECT exchanges are as between two places which have no exchange established mutually with each other, and which therefore require the intervention of a third place.

As in such operations the agency of third parties is required, and charges will be thereby incurred, this will be a fit place to direct how charges are to be placed in the stating of an equation.

How to place Charges in the stating of an Equation.

RULE.—First consider whether a large or a small quotient will be advantageous to the contemplated operation; if the former, then the charges must be placed in the column of antecedents—if the latter, then in that of the consequents; for as the charges are a diminution of profit, so must the result of the operation be prejudiced to the extent of such charges, and make, in either case (the charges being estimated at a certain rate per cent), 100 without charges as the equivalent of 100 with the addition of the charges; thus, supposing the charges to amount to $2\frac{1}{2}$ per cent, I should say, 100 without charges = $102\frac{1}{2}$ with charges: this will be further illustrated as I proceed.

A few examples will suffice to shew the mode of calculating indirect exchanges, as the principle upon which these are worked will equally apply to any other cases that can occur.

EXAMPLES.

Having given my correspondent in Bremen an order for a quantity of linens, I direct the amount of invoice to be remitted from Hamburgh, which is done at 133 rix-dollars for 300 marks banco, and the amount so remitted to be drawn upon me in London from Hamburgh, at 37 shillings Flemish per £ sterling: what exchange will that establish between London and Bremen, in rix-dollars for £100 sterling, my correspondent in Hamburgh charging me $\frac{5}{8}$ per cent for commission, brokerage, and stamp?

N.B. Accounts are kept in Bremen in rix-dollars, grotes, and schware.

1 rix-dollar = 72 grotes.
1 grote..... = 5 schware.

sterling.....£1. = 37 shil. Flem.
shil. Flem.....8 = 3 marks, banco.
marks with charges, $100\frac{5}{8}$ = 100 marks without charges.
marks.....300 = 133 rix-dollars.
How many rix-dollars? = £100. sterling.

Worked thus: —

$$\frac{37 \times \cancel{3} \times \cancel{100} \times 133 \times \cancel{100}}{\cancel{6} \times \cancel{100625} \times \cancel{300}} = \frac{37 \times 133}{2 \times 4{\cdot}025} = \text{R.-d. gr. } 611\ 22.$$

$$\begin{array}{rr}
 & 133 \\
 & 37 \\
\hline
4{\cdot}025 & 931 \\
2 & 399 \\
\hline
8{\cdot}050 &)4921{\cdot}000(611 \\
 & 48300 \\
\hline
 & 9100 \\
 & 8050 \\
\hline
 & 10500 \\
 & 8050 \\
\hline
 & 2450 \\
 & 9 \times 8 = 72 \\
\hline
 & 22050 \\
 & 8 \\
\hline
 & 176400(21 \\
 & 16100 \\
\hline
 & 15400 \\
 & 8050 \\
\hline
 & 7350
\end{array}$$

Here the charges are rightly placed in the column of antecedents, for the larger the quotient is, the more advantageous to me, as thereby I shall receive the greater number of dollars for the money paid in London; and as the charges are to operate against me, I must reduce the quotient to that extent, which is effected by placing them in the column of antecedents, whereby the divisor is increased.

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
2 =	0·30103	37 =	1·56820
4·025 =	0·60476	133 =	2·12385
	0·90579		3·69205
			·90579
			2·78626 = 611 r.-d.

I order my correspondent at Amsterdam to remit to Bremen, for my account, which he does at 250 florins for 126 rix-dollars, and takes his reimbursement upon me in London, at 39 shil. Flem. per £ sterling, charging me ¾ per cent for commission, brokerage, and stamps: what exchange will that give, as between London and Bremen?

Sterling.....	£1.	=	39 shil. Flem.
Shil. Flem.....	20	=	6 florins.
Florins, with charges,	100¾	=	100 florins without charges.
Florins.....	250	=	126 rix-dollars.
How many rix-dollars?		=	£100. sterling.

Worked thus: —

$$\frac{39 \times 6 \times \cancel{100}^{5} \times 126 \times \cancel{100}^{20}}{1 \times \cancel{20} \times \cancel{100 \cdot 75} \times \cancel{250}^{50}} = \frac{39 \times 6 \times 126 \times 4}{4{\cdot}03 \times 50} = \text{R.-d. gr. } 585\ 21$$

$\cancel{20 \cdot 15}^{4{\cdot}03}$

		39
		6
		234
		126
		1404
		2808
	4·03	29484
	50	4
	201·50	)117936·00(585·21
		100750
		171860
		161200
		106600
		100750
		5850
		8
		46800
		9
		421200(20
		40300
		18200

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
4·03 =	0·60530	39 =	1·59106
50 =	1·69897	6 =	0·77815
	2·30427	126 =	2·10037
		4 =	0·60206
			5·07164
			2·30427
			R.-d.
			2·76737 = 585 and $\frac{3}{10}$.

Here it may be observed, that although there is no exchange established at London on Bremen, there is an exchange at Bremen on London; and that therefore my correspondent in Bremen might have sought his reimbursement by drawing upon me;—that is true, but I am supposing the case, which may for various reasons occur, that it was necessary I should *remit* to him the amount of the goods he had purchased by my order, and for my account.

Having to remit to Bremen, I direct my correspondent at Paris to make the remittance thence for my account, which is done at 18 groschen for 1 franc, charging $\frac{3}{4}$ per cent for his agency, &c.: what exchange will this yield between London and Bremen, the reimbursement at Paris upon me in London being at 25 francs per £. stg.?

Ans. 620 d. 24 g.

I am indebted to Dantzic, and, in payment, direct Amsterdam to remit thither, which is done at £1. Flemish for 413 groschen, subject to a charge of $\frac{1}{8}$ per cent, for brokerage, &c.: what exchange is thereby

established as between London and Dantzic in florins for £15 stg., the reimbursement to Amsterdam upon me in London being at 39 shillings 6 grotes Flem. per £ stg.?

Ans. 27 fl.

What exchange will be established, as between London and Dantzic, by a remittance from Hamburgh to Dantzic at 1 rix-dollar for 186 groschen, payment to Hamburgh being made by a draft upon London at 37 shillings 9 grotes Flemish per £ stg., and the charges for agency, &c., $\frac{7}{8}$ per cent.

Ans. $30\frac{1}{2}$ fl.

London is indebted to Leipzig, and directs payment to be made from Paris, which is done at 300 francs for 77 rix-dollars, and the reimbursement to the latter place is by a draft upon London at 25 francs 10 centimes per £ stg.: what exchange is thereby established as between London and Leipzig, the charges being $\frac{3}{4}$ per cent.?

Ans. $6\frac{5}{8}$ r.-d.

I owe money at Leipzig, and desire my correspondent at Hamburgh to remit thither, which he does at $144\frac{1}{2}$ rix-dollars for 100 rix-dollars Hamburgh banco, and pays himself by a draft upon me in London at 38 shillings 3 grotes Flemish per £ stg., charging me $\frac{3}{4}$ per cent for agency, &c.: what exchange will this yield between London and Leipzig?

Ans. $6\frac{5}{8}$ r.-d.

London is indebted to Stockholm, and directs pay-

ment to be made from Amsterdam, which is done at 45 shillings species for 1 rix-dollar, the reimbursement to Amsterdam by a draft upon London, at 39 shillings 9 grotes Flemish per £ stg., at a charge on the whole transaction of $\frac{5}{8}$ per cent: what will be the exchange as between London and Stockholm?

Ans. $5\frac{9}{16}$ r.-d.

Having to remit to Stockholm, I order Paris to do it, which is done at $25\frac{1}{2}$ shillings species for 3 francs, and the reimbursement taken upon me in London, at 24 francs 75 centimes per £ stg., subject to a charge of $\frac{1}{2}$ per cent: at what exchange, as between London and Stockholm, shall I have remitted?

Ans. $4\frac{3}{8}$ r.-d.

A merchant in London is indebted to Copenhagen, and directs Hamburgh to remit thither, which is effected at 123 rix-dollars for 100 rix-dollars Hamburgh banco, the latter place reimbursing itself by a draft upon London at 37 shillings 6 grotes Flemish per £ stg., charging $\frac{5}{8}$ per cent for agency, &c.: at what rate of exchange, as between London and Copenhagen, will the debt have been discharged?

Ans. $5\frac{1}{3}\frac{3}{2}$ r.-d.

OF ARBITRATION OF EXCHANGES;

OR,

PROPORTIONAL EXCHANGES.

ARBITRATIONS of exchange teach us, by combining the quotations of the courses of exchange from different places to find a proportional exchange between two places through the intervention of one or more other places; whereby merchants are frequently enabled to draw or remit more advantageously than they could have done with the place on which they had to draw, or to which they had to remit, direct: thus, supposing I had to remit from London to Hamburgh, I might, instead of buying a bill upon the latter place, buy one upon Paris, and remit it to my correspondent at Hamburgh, who would negotiate it and credit my account for the amount it produced, less the charges attending such negociation (and which would be only a small brokerage, and in some places a trifle for stamping). But, in order to enable me to determine whether the direct or indirect remittance would be the more advantageous, I must find the proportional exchange through Paris, to compare it with the direct exchange; or, in other words, see which operation would produce me the most money at Hamburgh for that which I paid in London. Again, if I had money due to me at Hamburgh, I might (if, by a combination of the exchanges, I found it to be more advantageous)

draw upon my correspondent at Paris, and direct him to take his reimbursement for my draft by drawing upon my debtor in Hamburgh for my account.

Arbitrations of exchange are either simple or compound.

Simple Arbitration is when the operation is limited, as between two places, with the intervention of one other place.

Compound Arbitration is as between two places, with the intervention of two or more other places.

Cases of compound arbitration but seldom occur; for, the charges arising out of so many transactions would absorb, in most instances, any profit that might otherwise attend them; and also, because little dependence could be placed upon the quotations of the different courses of exchange that would constitute the terms of the equation: for, many and important fluctuations might take place between the period when such quotations were made, and that when an order to act upon them would arrive; whilst, in the case of a simple arbitration, the fluctuation of only one course of exchange would be risked, and charges incurred at only one place.

The course of exchange being naturally different for bills drawn at short, and those drawn at long dates, it is necessary to take the item of interest into consideration when making our calculations: for instance, the exchange in London upon Hamburgh, for bills at 3 months' date, might be 37/6, and the proportional exchange for remitting thither a bill upon Paris only 37/4, which, at first sight, would make it appear as more advantageous to remit direct a bill upon Hamburgh; but if I did so, my correspondent would only

credit my account at maturity of such remittance, that is, 3 months after I paid for it in London, whilst he would credit me for the remittance on Paris so soon as negotiated, and consequently (allowing half a month for the transmission of the remittance and its subsequent negotiation) $2\frac{1}{2}$ months earlier, for which period interest would be gained by the indirect over the direct remittance, which, being about (at 5 per cent) 4 grotes, if added to the proportional indirect exchange of 37/4, gives 37/8, and consequently, 2 grotes, or about $\frac{1}{2}$ per cent, more favourable than the direct remittance.

If, also, instead of drawing upon Hamburgh direct at 3 months' date, I drew upon my correspondent at Paris at 3 months' date, and he drew at maturity of my draft on Hamburgh for my account, also at 3 months' date, it is clear that the money would, in the latter case, be paid 3 months later than if I had drawn at once upon Hamburgh at 3 months' date, whereby I should gain interest for that period; but as I could not foresee what would be the course of exchange in Paris upon Hamburgh when my draft would become due, the operation would be too speculative; and to secure the exchange upon which I founded my calculation, I must direct my correspondent at Paris to draw forthwith, by which the money would be paid at Hamburgh about the same time as if I had drawn direct upon that place, and so far I should obtain no advantage in interest by the indirect operation; but I should have it in Paris for about 3 months, as my correspondent there would receive the money for his draft upon Hamburgh nearly 3 months before he would have to pay my draft upon him,—or I might draw upon him, at a very short date, at a proportionably lower or more

favourable course of exchange,—all of which would require to be taken into consideration when stating the equation, to determine the greater advantage of drawing direct or indirect.

The same rule which I gave (page 195) for placing the charges in the stating of an equation, is equally applicable in directing how to place the item of interest.

When the object of stating the equation is only to find the proportional course of exchange, it will suffice to get a result very near to the truth, and without requiring a minute fractional accuracy, and, therefore, to take the interest at an amount of per-centage for the time very nearly to exactness. For this purpose I have constructed the following Table, to be used when the rate of interest is 5 per cent per annum; and for other rates similar tables may be easily formed upon the same principle: I have not gone beyond 3 months, as this is generally the extreme term at which bills are drawn:—

3	months	=	$\frac{1}{4}$	of a year, or	$1\frac{1}{4}$	per cent	=	1·25
$2\frac{1}{2}$	do.	=	ab^t $\frac{1}{5}$	do.	1	do.	=	1
2	do.	=	$\frac{1}{6}$	do.	ab^t $\frac{7}{8}$	do.	=	·875
$1\frac{1}{2}$	do.	=	$\frac{1}{8}$	do.	$\frac{5}{8}$	do.	=	·625
1	do.	=	$\frac{1}{12}$	do.	$\frac{7}{16}$	do.	=	·4375
$\frac{1}{2}$	do.	=	$\frac{1}{24}$	do.	$\frac{7}{32}$	do.	=	·21875
$\frac{1}{4}$	do.	=	$\frac{1}{48}$	do.	$\frac{7}{64}$	do.	=	·109375

The following examples will suffice for elucidation and practice.

London remits to Hamburgh a bill upon Paris, taken at 25 francs 50 centimes per £ sterling, which is negotiated at 26 shillings Lubisch for 3 francs, subject to a brokerage of 1 per $\frac{000}{000}$, on which London obtains

an advantage of $2\frac{1}{2}$ months' interest, as compared with a direct remittance: what will be the proportional course of exchange as between London and Hamburgh through Paris, deducting the charge of brokerage, and adding the advantage in interest?

Sterling.....	£1. =	25·50 francs.
Francs	3 =	26 shillings Lubs.
Shillings Lubs.....	6 =	1 shilling Flem.
Shill. Flem. with charges	1001 =	1000 do. without charges.
Do. without interest..	100 =	101 do. with interest.
How many shillings Flemish ? =		£1. sterling.

Worked thus: —

$$\frac{25{\cdot}5 \times 26 \times \overset{10}{\cancel{1000}} \times 101}{3 \times 6 \times 1001 \times \cancel{100}} = 37 \text{ shill. } 2 \text{ gr. Flem. Ans.}$$

25·5
26
1530
510
6630·0
101
663
6630
)669630·0(37·2
540540
1290900
1261260
29640
12
355680(1
180180
175500

1001
3
3003
6
180180

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
3 =	0·47712	25·5 =	1·40654
6 =	0·77815	26 =	1·41497
1001 =	3·00043	10 =	1·——
	4·25570	101 =	2·00432
			5·82583
			4·25570
			1·57013=37 sh. 2 gr.

It is here evident, for reasons already given, that the larger the quotient, the more profitable will be the operation; therefore, as the charge of brokerage is a deduction, it must be placed in the column of antecedents, and the item of interest, being an advantage, must be placed in that of consequents.

What is the proportional course of exchange between London and Lisbon by remitting a bill to the latter place upon Hamburgh, taken at 37 shillings Flemish per £ stg., which is negotiated at 42 grotes Flemish per crusade of 400 reas, chargeable with a brokerage of $\frac{1}{8}$ per cent, but enjoying an advantage of 2 months' interest, as compared with a direct remittance?

Reas without brokerage,	100	=	100⅛ reas with brokerage.
Do. with interest....	100⅛	=	100 do. without interest.
Reas	400	=	42 grotes Flemish.
Grotes Flemish	12	=	1 shilling do.
Shillings do.	37	=	£1. sterling.
Sterling	£1.	=	240 pence do.
How many pence?		=	1000 reas.

Worked thus: —

$$\frac{\overset{\cdot 801}{\cancel{100 \cdot 125}} \times \cancel{100} \times 42 \times \overset{15}{\cancel{240}} \times \cancel{1000}}{\cancel{100} \times \overset{\cdot 807}{\cancel{100 \cdot 875}} \times \cancel{400} \times \overset{3}{\cancel{12}} \times 37} = 56\tfrac{1}{2}\text{ d. Ans.}$$

	·801	
	42	
·807	1602	
3	3204	
2421	33·642	
37	3 × 5 = 15	
16947	100·926	
7263	5	
89·577	)5046·300(56½	
	447885	
	567450	
	517462	
	49988	
	4	
	199952(2	
	179154	
	20798	

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
100⅛ =	2·00378	100⅛ =	2·00054
400 =	2·60206	42 =	1·62325
12 =	1·07918	240 =	2·38021
37 =	1·56820	1000 =	3
	7·25322		9·00400
			7·25322
			1·75078 = $56\frac{5}{16}$.

Here the 2 months' interest is equal to $\frac{1}{8}$ of 5 per cent, as per Table; and as the operation will be profitable in proportion as the result of the equation or quotient be small, it is placed in the column of antecedents, and the item of charges, for the same reason, is placed in that of the consequents.

As the charge of brokerage and the item of interest arise in Lisbon, where the kind of money is reas, and there would be no consequent in reas till the end of the stating of the equation, it is more convenient to consider these items in the first place, and to commence the stating therewith.

Having to draw in London upon Hamburgh, and the course of exchange being, for bills at 3 months' date, 35 shillings 6 grotes Flemish per £ sterling, I prefer drawing upon Paris at 3 months' date, at 25 francs per £ sterling, desiring my correspondent there to draw immediately for my account upon Hamburgh, which he does at 190 francs for 100 marks banco, at 3 months' date, charging me $\frac{5}{8}$ per cent for commission, brokerage, &c.: what will be the proportional course of exchange as between London and Hamburgh, taking into consideration the advantage of 3 months' interest, which, as shewn in the rule, I should gain by such an operation?

Sterling.....	£1.	=	25	francs.
Francs, with interest ..	$101\frac{1}{4}$	=	100	do. without interest.
Do. without charges ..	100	=	$100\frac{5}{8}$	do. with charges.
Francs	190	=	100	marks.
Marks.....	3	=	8	shillings Flemish.
How many shillings Flem.?		=	£1.	sterling.

Worked thus:—

$$\frac{\overset{5}{\cancel{95}} \times \cancel{100} \times \overset{\cdot805}{\cancel{100{\cdot}625}} \times 100 \times 8}{\underset{81}{\cancel{101{\cdot}25}} \times \cancel{100} \times \underset{38}{\cancel{190}} \times 3} = 34 \text{ sh. } 10 \text{ gr. Ans.}$$

·81		
38	·805	
648	5	
243	4·025	
3078	402·500	
3	8	
92·34	)3220·000(	34·8
	27702	12
	44980	9·6
	36936	
	80440	
	73872	
	6568	

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
$101\frac{1}{4}$ =	2·00540	25 =	1·39794
190 =	2·27875	$100\frac{5}{8}$ =	2·00271
3 =	·47712	8 =	0·90309
	4·76127	100 =	2
			6·30374
			4·76127
			1·54247 = 34·10

When, however, the result of an operation is required to be ascertained with fractional accuracy, then the amount of interest must be closely calculated, which may be easily done by the following rules:—

How to calculate Interest for 12 *months, at* 5 *per cent per annum.*

RULE.—Divide the principal by 20, and the quotient will be the amount of interest required.

EXAMPLE.—What is the interest of £560. for one year?

2,0)56,0

£28 Answer.

ILLUSTRATION.—If this example had been worked according to the usual mode, it would have been thus:—

£. £. £. £.
As 100 : 5 :: 560 : 28 Ans.
5

£28,00

Here I multiply 560 by 5 and divide by 100; but as the result would be precisely the same by first dividing the 100 by 5, and then using that quotient, viz. 20, as a divisor into 560, I take at once the divisor 20, which will always be the same in examples under this case: thus,—

$$\frac{\cancel{5} \times 560}{\cancel{100}\ 20} = \frac{560}{20} = 28$$

How to find the Interest for any number of Days, at 5 *per cent per annum.*

RULE.—Multiply the principal by the number of days, and divide the product by 7300.

EXAMPLE.—What is the interest of £650. for 55 days, at 5 per cent per annum?

£650
55
3250
3250
7300)35750(4
29200
6550
20
131000(17
7300
58000
51100
6900
12
82800(11
7300
9800
7300
2500

£. s. d.
Ans. 4 17 11

ILLUSTRATION.—In the usual way, this example would have been worked thus:

As 100 : 5 :: 650
5
32,50
20
10,00

Then

					£.	s.	d.
As 365	:	32·10	::	55	:	4	17	11

20

650

55

3250

3250

365)35750(2,0/9,7

3285 — 4 17

2900

2555

345

12

4140(11

365

490

365

125

Now it is clear, that whether I divide £650. or any other number, successively by 20 and 365, or by their product 7300 (20 × 365 = 7300); the result or quotient must be the same: thus,—

£.

2,0)65,0

365)32 10

20

650(1

365

285

12

3420(9

3285

135

$\frac{135}{365} = \frac{27}{73}$

£.

650

20

or 7300)13000(1

73

57

12

684(9

657

27

73

And it must be no less obvious, that if I at once multiply 650 by 55, and divide that product by 7300, it will give me the same result as if I first multiplied 650 by 5, divided that product by 100, multiplied its quotient by 55, and then divided such product by 365, as shewn in the workings of this example: thus, the one operation of

$$\frac{650 \times 55}{7300}$$

gives the same result as the two operations,

$$\frac{650 \times 5}{100} \text{ and } \frac{\text{£. } s.}{32\ 10 \times 55} \over 365$$

In foreign countries, however, generally, in calculating interest, the year is divided into 12 months of 30 days each, consequently, into 360 days,—and the fixed divisor to find the amount of interest for any given number of days, must, in such cases, be 7200;—for, as the fixed divisor 7300 is found by multiplying 20 by 365 days, so will 7200 be produced by multiplying 20 by 360 days.

How to find a fixed Divisor for calculating the amount of Interest for any given number of Days, when the rate of Interest is more or less than 5 per cent per annum.

RULE.—As the given rate of interest is to 5 per cent, so is the fixed divisor (7300 or 7200, according as the year is taken at 365 or 360 days) to the required fixed divisor.

EXAMPLE.—What is the fixed divisor at 4 per cent per annum, that for 5 per cent per annum being 7300?

As 4 : 5 : : 7300 : 9125
5

4)36500

9125 Answer.

In operations from London with foreign places, the rate of interest in the latter is to be considered; and for that purpose I have calculated the following fixed divisors, taking the year as 360 days.

When the rate of Interest	*Then the fixed Divisor will be*
Is 1 per cent	36000
2 do	18000
3 do	12000
4 do	9000
5 do	7200
6 do	6000
7 do	5144$\frac{4}{7}$*
8 do	4500
9 do	4000
10 do	3600
11 do	3272$\frac{8}{11}$*
12 do	3000

* When the rate per cent is 7 or 11, it will be inconvenient to use the fixed divisor.

EXAMPLE, *in which the exact amount of Interest is to be taken in the stating.*

I remit to my correspondent at Hamburgh a bill for £1000. at 3 months' date, the course of exchange 37 shillings Flemish per £ sterling, for which I desire him to make me returns in a bill upon London, which he does at the exchange of 36 shillings Flemish per £ sterling, —the discount on my remittance to him being

70 days, at the rate of 4 per cent per annum, and his charges on the transaction $\frac{3}{4}$ per cent: what amount will he have to remit me in sterling money?

Sterling.....	£1.	=	37 shil. Flem.
Shil. Flem. with charges	$100\frac{3}{4}$	=	100 do. without charges.
Ditto, with interest.....	$1007\frac{7}{9}$	=	1000 do. without interest.
Shil. Flem.....	36	=	£1. sterling.
How many pounds sterling must be remitted for.....		=	£1000. sterling?

For Interest,

1000 schil. Fl.

Fixed Div. 70 days.

at 4§

9000)70000

$7\frac{7}{9}$

Worked thus:—

$$\frac{37 \times \cancel{100} \times 1000 \times 1000}{\cancel{100{\cdot}75}_{4{\cdot}03} \times 1007{\cdot}777 \times \cancel{36}_{9}} = £1012.\ 5s.\ \text{Ans.}$$

1007·777
4·03

3023331
40311080

4061·34131
9

36552·07179)37000000·00000(1012·25
3655207179
20
5·00

4479282100
3655207179

8240749210
7310414358

9303348520
7310414358

19929341620
17276035895

2653305725

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
4·03 =	0·60531	37 =	1·56820
1007·777 =	3·00336	1000 =	3
9 =	0·95424	1000 =	3
	4·56291		7·56820
			4·56291
			3·00529 = £. 1012 s. 5

EXPLANATION.—Knowing that my last consequent in the stating of the equation must be in pounds sterling,—because it is to the £1000. that an answer or equivalent antecedent is acquired,—I commence, according to the general rule for stating an equation, by placing £1. sterling as the first antecedent, and as equal to 37 shillings Flemish; then, for the next antecedent, the $\frac{3}{4}$ per cent charges, by making $100\frac{3}{4}$ shillings Flemish with charges, equal to 100 shillings Flemish without charges: I then find, according to the rule, the interest for 70 days on 1000 shillings (as more convenient for working than on 100) to be $7\frac{1}{9}$ shillings Flemish, and therefore make, as the next antecedent, $1007\frac{1}{9}$ shillings Flemish with interest, equal to 1000 ditto without interest;—it is clear, that both charges and interest must be deductions from the amount that is to be remitted me, and that they are therefore properly placed in the column of antecedents. Thus far all is contemplated that is to be done at Hamburgh till the remittance is to be made, and I now consider the course of exchange at which it is to be made, and looking to my question, find it to be 36 shillings Flemish per £ sterling: this I take for my next antece-

dent, and as equal to £1. sterling, leaving the succeeding place in the column of antecedents blank, to receive the number of pounds sterling (the required answer) equal to the last consequent of £1000. sterling.

I will now prove this result to be correct, by working the example according to the usual mode in common arithmetic.

First, I should find how much would be paid for my remittance of £1000. at Hamburgh: thus,—

	£.	S. Fl.	£.	
As	1	: 37 : :	1000	: 13875 marks banco.
		6		
(4 × 4 = 16)		4)222000		
		4)55500		
		13875		

From these 13875 banco marks I must now deduct the $\frac{3}{4}$ per cent charges and the 70 days' interest, when the remainder will be the amount with which my correspondent will have to buy me a bill upon London: —

Charges.		Interest.		
13875		13875		
		70		
½ = 6937	8		Charges	104 b. m. 1 g.
¼ = 3468	12	9,000)971,250	Interest	107 b. m. 15 g.
104,06	4	107	15	Total 212 marks b°
16				
100				

Then, from 13875 marks
take 212,

leave 13663 to be invested in

a bill upon London, the amount of which in sterling, at the given exchange of 36 shillings Flemish per £ sterling, I find thus:—

S. Fl.	£.	Marks.	£.	s.	d.	
As 36	: 1	:: 13663	: 1012	1	6	Answer.

6

216

$4 \times 4 = 16$

54652

4

216)218608(1012

216

260

216

448

432

16

20

320(1

216

104

12

1248(5

1080

168

How to find the proportionate Exchange between long-dated and short-dated Bills; or, as usually called, between long and short Paper.

CASE I.—*When the course is given of the long-dated Bills.*

RULE.—Find the amount of interest for the difference of days between the long and the short-dated bills, on the given course of exchange, which amount of interest being deducted from the given course, will give the proportionate course for the short-dated bill.

EXAMPLE.—The exchange in London upon Paris for bills at 3 months' date being 25 francs 50 centimes, what would be the proportionate exchange for bills of 10 days' date, the rate of interest being 4 per cent per annum?

Days.	Interest.
90	25·5
10	80
80 difference.	9000)2040·0
	23 centimes, nearly.

Course at 3 months, or 90 days	25·50
Interest for 80 days	23
Proportionate course for 10 days	25 27

CASE II.—*When the course is given for the short-dated Bills.*

RULE.—Find the amount of interest as before, which add to the given course, and the sum will be the proportionate course for long dated bills.

EXAMPLE.—The course of exchange in London for bills upon Hamburgh at 1 month date being 37

shillings 6 grotes Flemish per £ sterling, what would be the proportionate exchange for bills at 3 months' date, the rate of interest being 6 per cent per annum.

Days.	Interest.
90	37·5
30	60
60 difference.	6000)22,50·0
	4½ grotes.

Course at 1 month, or 30 days		37 s.	6 g.
Interest at 2	do. 60 do.		4½ g.
Proportionate course at 3 months		37	10½.

How to find the rate per cent between the direct Course of Exchange and the indirect or arbitrated, or proportional Course of Exchange.

RULE.—As the direct course is to the difference between the direct and the indirect courses, so is 100 to the difference per cent required.

EXAMPLE.—The direct course in London is 25 francs 65 centimes per £ sterling, but the indirect course through Hamburgh is 25 francs 50 centimes, what is the difference per cent?

	Fcs.	Cs.
Direct course....	25	65
Indirect	25	50
Difference		15 cs.

Fcs. Cs. Cs. Fcs. Cs.
As 25 65 : 15 : : 100 58, or $\frac{58}{100} = \frac{2\,9}{5\,0}$ or nearly $\frac{1}{2}$.

By Logarithms.

Subtract the logarithm of the higher course from that of the lower course, seek the difference in the Auxiliary Table of logarithms, or per-centage Table, and if not contained therein, take the number nearest to it, over which will be the integer, and in the first column of figures, in a line with it, the fractional part of the rate per cent.

Thus, for the above example—

	Fcs. Cs.	Log.
Highest course....	25 65	1·40909
Lowest course	25 50	1·40654
	Difference	255

Seeking then 255 in the Auxiliary Table, I do not find it, but the nearest number thereto 259, over which, in the line of integers, is 0, and in a line with it, in the first column, the fraction $\frac{1}{3}\frac{9}{2}$, which is the rate per cent, and near enough for all practical purposes.

In drawing, if the indirect course be higher than the direct course, the difference will be the rate per cent worse; in remitting, such difference will be the rate per cent better;—and *vice versâ*, if the indirect course be lower than the direct course. In the preceding example, I could have drawn $\frac{9}{11}$ per cent better indirectly, and remitted $\frac{1}{3}\frac{9}{2}$ per cent better direct.

A remarkable, and, as regards their use in exchange calculations, an important property of logarithms is, that the difference between any two logarithmal numbers shews the difference per cent between their corresponding natural numbers, and is found by the following rules:—

I. *To find how much per cent one Number is greater or better than another.*

RULE.—To the difference between their two logarithmal numbers add the logarithm of 100, viz., 2·00000, seek the natural number corresponding to the logarithm so obtained, and the excess thereof above 100 will be the rate per cent required: thus,—

The log. of 65 is	1·81291	
of 56	1·74819	
	·06472	difference, to which add
	2·00000	
	2·06472	= 116⅓

consequently, 65 is 16⅓ per cent greater that 56.

Again,

The log. of 17½ is	1·24304	
of 14⅛	1·14999	
	·09305	difference, to which add
	2·00000	
	2·09305	= 123⅛

consequently, 17½ is 23⅛ per cent better than 14⅛.

II. *To find how much per cent one Number is less or worse than another.*

RULE.—From the logarithm of 100, viz. 2·00000, deduct the difference of their logarithmal numbers, seek the natural number corresponding to the logarithm thereby obtained, and whatever such number be short of 100 will be the rate per cent required: thus,—

The log. of 34 is 1·53148
of 30 1·47712

·05436 difference, which subtracted from
2·00000

leaves 1·94564 = $88\frac{1}{4}$; difference between that and 100 is $11\frac{3}{4}$

100

Consequently, 30 is $11\frac{3}{4}$ per cent less than 34.

Again,

The log. of $35\frac{7}{16}$ is 1·54946
of $24\frac{1}{32}$ 1·38078

·16868 difference, which subtracted from
2·00000

leaves 1·83132 = $67\frac{13}{16}$; difference between that and 100 is $32\frac{3}{16}$

100

Consequently, $24\frac{1}{32}$ is $32\frac{3}{16}$ per cent less than $35\frac{7}{16}$.

OF FIXED NUMBERS.

In the stating of an equation to find out the proportional exchange through any given places, there will always be certain numbers which never vary whenever the same places are used, the numbers which do vary being the course of exchange, the rates of charges, &c. Now, instead of placing in the equation these numbers which never vary, it will suffice to place the number which would result from working them by themselves, which result is termed the *fixed number*, and is then worked with the variable numbers to find the proportional exchange required, by which method the operation will be materially curtailed, as is seen in the following example:—

I remit from London to Amsterdam a bill upon Lisbon, at 50½ pence sterling per milrea, which is negotiated at 41½ grotes Flemish per crusade of 400 reas: what proportional exchange will that establish as between London and Amsterdam?

Stating of the Equation.

Sterling....	£1.* =	240*	pence.
Pence	50½ =	1000*	reas.
Reas	400* =	41½	grotes Flemish.
Grotes Flem.	40* =	1*	florin.
How many florins? =		£1.*	sterling.

In every stating of an operation between London, Amsterdam and Lisbon, the numbers designated above

by an * will occur, viz., 1, 400, 40, in the column of antecedents, and 240, 1000, 1, 1, in that of consequents: now, the former being multiplied together produce 16000, and the latter 240000, which latter product being divided by the former yields a quotient of 15, which is the fixed number to be used instead of the several numbers marked with an *. The fixed number must be placed in that column whence the numbers were taken that gave the greater product for the dividend; hence, in the foregoing example it will have to be placed in that of the consequents.

The reduced stating will then be as follows:—

*15 fixed number.

Pence $50\frac{1}{2} = 41\frac{1}{2}$ grotes Flem.

The first statement would be worked thus:—

$$\frac{240 \times 1000 \times 41\frac{1}{2} \times 1 \times 1}{1 \times 50\frac{1}{2} \times 400 \times 40} = \begin{matrix}\text{Fl. st.}\\ 12\ 7\end{matrix}$$

By Logarithms.

Nat. No.	Log.
$50\frac{1}{2}$ =	1·70329
400 =	2·60206
40 =	1·60206
	5·90741

Nat. No.	Log.
240 =	2·38021
1000 =	3
$41\frac{1}{2}$ =	1·61805
	6·99826
	5·90741
	1·09085 = 12 fl. 7 st.

The second statement thus:—

$$\frac{15 \times 41\frac{1}{2}}{50\frac{1}{2}} = \begin{matrix}\text{Fl. st.}\\ 12\ 7\end{matrix}$$

By Logarithms.

Nat. No.	Log.
15 =	1·17609
$41\frac{1}{2}$ =	1·61805
	2·79414
$50\frac{1}{2}$ =	1·70329
	1·09085 = 12 fl. 7 st.

The advantage of this method is obvious; and it is usual in counting-houses where exchange operations are numerous, and where despatch is indispensable, to have Tables prepared for ascertaining the several proportional exchanges, by placing the logarithmal fixed numbers and the direct courses of the previous post day, and leaving blank spaces to insert the latest quotations received from the interventional places. It is true that this will only give results that would arise if those quotations remained the same when the operations took place, whilst they might subsequently fluctuate; but it is easy for persons well versed in such business to make allowances for such changes when probable; and it must be borne in mind, that such operations are, after all, speculative.

Thus, supposing I wished to be prepared for drawing upon or remitting to, Paris and Hamburgh, and the London quotations were on the preceding post day as follows —

Amsterdam	12·1	Cadiz	35⅛
Antwerp	12·1½	Bilboa	35¼
Rotterdam	12·1¼	Seville	34¼
Hamburgh	36·4	Malaga	35
Altona	36·5	Gibraltar	46
Paris	25·47	Leghorn	48½
Bourdeaux	25·45	Genoa	25·35
Vienna	10	Venice	46
Trieste	10·1	Naples	39⅜
Frankfort on the Main	150¼	Palermo	120
Petersburgh	10	Lisbon	48
Berlin	—	Oporto	47½
Madrid	35⅛		

My Table would be prepared as in the annexed form,

No. 1,—and if on the arrival of the French and Hamburgh mails, the quotations were as follow—

Paris.		Hamburgh.	
Amsterdam	57⅜	Amsterdam	107¼
Spain	14·80	Paris	188
Genoa	¾	Petersburgh	9⅛
Hamburgh	184¾	Spain	87½
Lisbon	600	Lisbon	34¼
Oporto	605	Oporto	34¼
Leghorn	506	Genoa	188
London	24·95	Leghorn	87½
Naples	506	Frankfort	148
Vienna	251¾	London	35·7
Frankfort	2⅝	Vienna	148⅛
Petersburgh	107		

My Table would be completed as in that No. 2,—and shew the several proportional exchanges as therein indicated, exclusive of the charges attending the indirect operations.

From this latter Table it appears, that with Paris it would be most advantageous to draw through Lisbon, that being the lowest proportional exchange, and to remit by way of Amsterdam, such being the highest; and with Hamburgh to draw through Lisbon, and to remit by way of Paris or Madrid,—provided always that either of these would, taking also charges into consideration, be more advantageous than drawing or remitting direct.

I have only contemplated four places in my Tables, but any number can of course be arranged upon the same principle.

PREPARATORY TABLE.

No. 1.

PARIS.	HAMBURGH.
AMSTERDAM.	AMSTERDAM.
12 f. 1 = 1·08099	12 f. 1 = 1·08099
Fixed Log. 2·07918	Fixed Log. 2·50515
3·16017	3·58614
=	=
HAMBURGH.	PARIS.
36·4 = 1·56031	25 f. 47 = 1·40603
Fixed Log. 2·42597	Fixed Log. 2·42597
	3·83200
=	=
LISBON.	LISBON.
Fixed Log... 5·85733	Fixed Log. 1·69897
48 = 1·68124	48 =
=	=
LEGHORN.	MADRID.
Fixed Log... 0·38021	Fixed Log. 1·16157
48½ = 1·68574	35⅛ = 1·54562
=	=

COMPLETED TABLE.

No. 2.

PARIS.	HAMBURGH.
AMSTERDAM.	AMSTERDAM.
12 f. 1 = 1·08099	12 f. 1 = 1·08099
2·07918	2·50515
3·16017	3·58614
57⅛ = 1·75872	107½ = 2·03040
1·40145	1·55574
= 25 f. 20 cs.	= 35/11½.
HAMBURGH.	PARIS.
36·4 = 1·56031	25 f. 47 = 1·40603
184⅛ = 2·26658	2·42597
3·82689	3·83200
2·42597	188 = 2·27416
1·40092	1·55784
= 25 f. 17	= 36/1½
LISBON.	LISBON.
5·85733	1·69897
48 = 1·68124	34½ = 1·53466
600 = 2·77815	3·23363
4·45939	48 = 1·68124
1·39794	1·55239
= 25 f.	= 35/8
LEGHORN.	MADRID.
0·38021	1·16157
506 = 2·70415	87½ = 1·94201
3·08436	3·10358
48½ = 1·68574	35⅛ = 1·54562
1·39862	1·55796
= 25 f. 4.	= 36/1¼.

SIMPLE ARBITRATIONS.

LONDON AND AMSTERDAM,

THROUGH

HAMBURGH.

I REMIT to Amsterdam a bill upon Hamburgh at 37 shillings 6 grotes Flemish per £ sterling, which is negotiated at 34½ stivers for 2 marks banco, subject to 1 per mil. brokerage: what is thereby the proportional exchange as between London and Amsterdam?

Equation with Charges.

Sterling.....	£1.	=	37 6 shil. and grotes Flem.
Shil. Flem.....	8	=	3 marks banco.
Marks.....	2	=	34½ stivers.
Stivers, with brokerage	1001	=	1000 do. without brokerage.
Stivers.....	20	=	1 florin.
How many florins?		=	£1. sterling.

Worked thus:—

$$\frac{37{\cdot}5 \times 3 \times 34{\cdot}5 \times 1000}{8 \times 9 \times 1001 \times 20} = 12\text{ f. }2\tfrac{1}{2}\text{st. Ans.}$$

25

$$37{\cdot}5 \times 3 = 112{\cdot}5$$

$$34{\cdot}5 \times 112{\cdot}5 = 3881{\cdot}25$$

$$5 \times 5 = 25$$

$$1001 \times 8 = 8008$$

$$19406{\cdot}25 \div 5 = 97031{\cdot}25$$

$$8008\ )97031{\cdot}25(12{\cdot}116$$

$$20 \times 2{\cdot}320$$

8008	
16951	
16016	
9352	
8008	
13445	
8008	
54370	
48048	
6322	

By Logarithms.

Nat. No.	Log.
8 =	·90309
1001 =	3·00043
	3·90352

Nat. No.	Log.
37·5 =	1·57403
3 =	·47712
34·5 =	1·53782
25 =	1·39794
	4·98691
	3·90352
	1·08339 = Fl. st. 12 2+

EQUATION WITHOUT CHARGES,

The Charges being deducted from the Result.

Sterling..... £1. = 37 6 shil. and grotes Flem.
Shil. Flem. ..... *8 = 3* marks.
Marks..... *2 = 34½ stivers.
Stivers..... *20 = 1* florin.
How many florins? = £1. sterling.

Worked thus: —

$$\frac{37{\cdot}5 \times 3 \times \overset{6{\cdot}9}{\cancel{34{\cdot}5}}}{8 \times 2 \times \underset{4}{\cancel{90}}} = \begin{array}{lll} \text{Fl.} & \text{st.} & \text{p.} \\ 12 & 2 & 7 \end{array}$$

3 Brok^{a} = 1 $\frac{888}{888}$

12 2 4 or 12 f. 2⅓ s.

	37·5	
	3	
8	112·5	
2	6·9	
16	10125	
4	6750	
64	)776·25(	12·129
	64	20
	136	2·580
	128	12
	82	6·960
	64	
	185	
	128	
	570	
	576	

By Logarithms.

Nat. No.	Log.
8 =	·90309
2 =	·30103
4 =	·60206
	1·80618

Nat. No.	Log.
37·5 =	1·57402
3 =	·47712
6·9 =	·83885
	2·88999
	1·80618
	1·08381 = Fl. 12 st. 2 +

As, in actual business, the charges at each place are always known and fixed, it is usual to omit them in the equation, and to deduct them as in the last working, which, with those who operate in exchanges, becomes, from practice, the work of a moment; and, for the same reason, the use of fixed numbers or fixed logarithms in an equation is equally familiar. I shall now proceed to work the last equation with the fixed number, respecting which I beg to refer the reader to what I stated on this subject at page 226, and have now only to add, that, in the foregoing and subsequent examples, I have denoted the unvariable numbers, from which the fixed number arises, in the stating of the equations with an *, as also the fixed number, when used.

EQUATION WITHOUT CHARGES,*
With the Fixed Number.

*106⅔ 37½
34½

Worked thus:—

$$\frac{37\frac{1}{2} \times 34\frac{1}{2}}{106\frac{2}{3}} = \begin{array}{ccc} \text{fl.} & \text{st.} & \text{p.} \\ 12 & 2 & 7 \end{array}$$

3 off brok.

12 2 4 = 12f. 2⅓s.

37½
34½

148
111
18¾
17¼

106⅔ 1294
3 3

320)3882(12
320

682
640

42
20

840(2
640

200
12

2400(7
2240

160

* Where the charges are fixed, they may be also contemplated in the fixed number; which, in the above example, would give the following equation: 106⅔ 37½
34½
1000 1000

I have worked this example by vulgar, instead of decimal fractions, because the decimal for $106\frac{2}{3}$ would have been an infinite decimal, and the result, consequently, not so accurate.

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.	
*$106\frac{2}{3}$ =	2·02803	$37\frac{1}{2}$ =	1·57402	
		$34\frac{1}{2}$ =	1·53783	
			3·11185	
			2·02803	
			1·08382 =	Fl. st. 12 2 +

It is clear that the figures on the left of this stating need not have been written down, but the logarithm of the fixed numbers placed only under the sum of the logarithms for subtraction; and this I shall do in the subsequent examples.

London having to draw upon Amsterdam, prefers drawing upon Hamburgh at 37 shillings 6 grotes Flemish per £ stg., ordering Amsterdam to draw immediately upon Hamburgh, which is done at 105 rix-dollars Dutch currency for 100 rix-dollars Hamburgh banco: what is the proportional exchange thereby as between London and Amsterdam, contemplating $\frac{5}{8}$ per cent charges, and the advantage of $2\frac{1}{2}$ months' interest at the rate of 3 per cent per annum?

EQUATION WITH CHARGES AND INTEREST.

Sterling.....	£1.	=	37 6	shillings and grotes Flem.
Shillings, with interest	$100\frac{1}{3}$	=	100	do. without interest.
Do. without charges..	100	=	$100\frac{5}{8}$	do. with charges.
Shillings Flem.....	8	=	1	rix-dollar Hamburgh.
Rix-dollars Hamburgh	100	=	105	do. Dutch.
Do. Dutch	1	=	$2\frac{1}{2}$	florins.
How many florins ?		=	£1.	sterling.

Worked thus:—

$$\frac{37{\cdot}5 \times \overset{4}{\cancel{100}} \times \overset{4{\cdot}025}{\cancel{100{\cdot}625}} \times 105 \times 2{\cdot}5}{100{\cdot}6 \times \cancel{100} \times 8 \times \cancel{100}} = \begin{matrix}\text{Fl.} & \text{st.} & \text{p.} \\ 12 & 6 & 2\end{matrix} \text{ Ans.}$$

		37·5	
		4·025	
		1875	
		750	
		15000	
		150·9375	
		105	
		7546875	
		15093750	
100·6		15848·4375	
8		·5 × 5 = 2·5	
804·8		7924·21875	
4		5	
3219·2		)39621·09375(12·3077	
		32192	20
		74290	6·1540
		64384	4
		99069	·6160
		96576	4
		249337	2·4640
		225344	
		239935	
		225344	
		14591	

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
100·6 =	2·00260	37·5 =	1·57403
8 =	·90309	4·025 =	·60477
4 =	·60206	105 =	2·02119
	3·50775	2·5 =	·39794
			4·59793
			3·50775
			1·09018 = 12£ 6 +

EQUATION WITHOUT INTEREST AND CHARGES,

These being deducted from and added to the Result.

Sterling.....	*£1.	= 37.6	shillings and grotes Flem.
Shillings Flem.....	*8	= 1*	rix-dollar Hamburgh.
Rix-dollars Hamburgh	*100	= 105	do. Dutch.
Do. Dutch	1	= 2½*	florins.
How many florins ?		= £1.*	sterling.

Worked thus :—

$$\frac{\overset{7\cdot5}{\cancel{87\cdot5}} \times \overset{21}{\cancel{105}} \times 2\cdot5}{8 \times \overset{20}{\cancel{100}} \over 4} = \text{Fl. 12, st. 6, p. 1 +}$$

1 6 = 75 days' interest @ 3⅛, deduct.

12 4 7

1 6 = ⅛ brokerage, add.

12 6 1

7·5
3 × 7 = 21
22·5
7
157·5
5 × 5 = 25
78·75

8 / 4 / 32)393·75(12·304
32
73
64
97
96
150
128
22

20
6·080
4
3·20
4
1·280

By Logarithms.

Nat. No.	Log.
8 =	·90309
4 =	·60206
	1·50515

Nat. No.	Log.
7·5 =	·87506
21 =	1·32222
2·5 =	·39794
	2·59522
	1·50515
	1·09007 = 12 fl. 6st. +

It will be remarked here, that, owing to the amount of interest being equal to the amount of charges, the addition and deduction are unnecessary.

EQUATION WITHOUT INTEREST AND CHARGES.

*With the Fixed Number.**

•320 $37\frac{1}{2}$
105

Worked thus :—

$$\frac{37{\cdot}5 \times 105}{320} =$$

37·5
105
1875
3750

320)3937·5(12·3
320 20
737 60
640
975
960
15

Fl. st.	
12 6 +	
1 6	deduct interest.
12 4 6	
1 6	add charges.
12 6 +	

By Logarithms.

Nat. No.	Log.	
37·5 =	1·57403	
105 =	2·02119	
	3·59522	
•320 =	2·50515	
	1·09007 =	Fl. st. 12 6 +

* Here the charges might have been included in the fixed number, but not the interest, as that will ever vary according to the date of the bill and the rate of interest.

London, having to remit to Amsterdam, buys a bill upon Hamburgh at 37 shillings 9 grotes Flemish per £ sterling, and sends it to Amsterdam, where it is negotiated at 34¾ stivers for 2 marks banco: what is thereby the proportional exchange as between London and Amsterdam, allowing 1 per mil. for brokerage?

Ans. 12 fl. 5¾ st.

Having in London to draw upon Amsterdam, I draw, in preference, upon Hamburgh, at 36 shillings 9 grotes Flemish per £ sterling, desiring my correspondent there to take his reimbursement upon Amsterdam, which he does at the exchange of 104½ rix-dollars Dutch currency for 100 rix-dollars banco, charging me ¾ per cent for commission, brokerage, &c.: what proportional exchange does that yield as between London and Amsterdam? Ans. 12 fl. 1¾ st.

What is the proportional exchange between London and Amsterdam, if I remit thence to the latter place a bill upon Hamburgh at 37 shillings Flemish per £ sterling, which is negotiated at 35½ stivers for 2 marks banco, and whereon 1 per mil. brokerage is charged? Ans. 12 fl. 6 st.

If I, in London, draw upon Hamburgh at 36 shillings 6 grotes Flemish per £ sterling, and Hamburgh pay itself by drawing upon Amsterdam at 105¼ rix-dollars Dutch for 100 rix-dollars Hamburgh, what will be thereby the proportional exchange between London and Amsterdam, contemplating ¾ per cent charges, and an advantage of 2 months' interest at 4 per cent per annum? Ans. 12 fl. 0¼ st.

LONDON AND AMSTERDAM,

THROUGH

PARIS.

I REMIT to Amsterdam a bill upon Paris at 25 francs 90 centimes per £ sterling, which is negotiated there at 56½ grotes Flemish for 3 francs, subject to a brokerage of 1 per mil.: what exchange will that yield as between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1 =	25·90 francs and centimes.
Francs, with brokerage	1001 =	1000 francs without brokerage.
Francs.....	3 =	56½ grotes Flemish.
Grotes Flemish.....	40 =	1 florin.
How many florins? =		£1 sterling.

Worked thus: —

$$\frac{25{\cdot}90 \times \overset{25}{\cancel{1000}} \times 56{\cdot}5}{1001 \times 3 \times \cancel{40}} = \begin{array}{ccc} \text{Fl.} & \text{st.} & \text{p.} \\ 12 & 3 & 10 \end{array}$$

25·90
5 × 5 = 25
129·50
5
647·50
56·5
323750
1001 388500
3 323750
3003)3658·3750(12·182
3003 20
6553 3·640
6006 4
5477 2·560
3003 4
24745 10·240
24024
7210
6006
1204

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
1001 =	3·00043	25·90 =	1·41330
3 =	·47712	56·5 =	1·75205
	3·47755	25 =	1·39794
			4·56329
			3·47775
			1·08554 = Fl. 12 st. 3 +

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling..... *£1. = 25·90 francs and centimes.
Francs..... *3 = 56½ grotes Flemish.
Grotes Flemish..... *40 = 1* florin.
How many florins? = £1.* sterling.

Worked thus:—

$$\frac{25{\cdot}90 \times \overset{11{\cdot}3}{\cancel{56{\cdot}5}}}{3 \times \overset{8}{\cancel{40}}} = \text{Fl. 12 st. 3 p. 14}$$

4 brokerage.

12 3 10 Ans.

25·90
11·3
7770
8 28490
3
24)292·670(12·194
24
52
48
46
24
227
216
110
96
14

20
3·880
4
3·520
4
14·000

By Logarithms.

Nat. No.	Log.
3 =	·47712
8 =	·90309
	1·38021

Nat. No.	Log.
25·90 =	1·41330
11·3 =	1·05308
	2·46638
	1·38021
	1·08617 = Fl. 12 st. 3+

EQUATION WITHOUT CHARGES,

With the Fixed Number.

•120 25·90

56½

Worked thus: —

12·95 11·3

~~25·90~~ × ~~56·5~~ = Fl. st. p.

~~120~~ 12 3 14

~~9~~

12 4 brokerage.

12 3 10 Ans.

12·95

11·3

3885

14245

12)146·335

12·194

20

3·880

By Logarithms.

Nat. No.		Log.
25·90	=	1·41330
56·5	=	1·75205
		3·16535
• 120	=	2·07918
		1·08617 = Fl. st. 12 3 +

London draws upon Paris short at 25 francs 60 centimes per £ sterling, and orders Paris to draw upon Amsterdam at 3 months' date, which is done at 57¾ grotes Flemish for 3 francs: what is the exchange thereby established as between London and Amsterdam, allowing ½ per cent for charges?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	25·60 francs and centimes.
Francs without charges..	100	=	100½ do. with charges.
Francs.....	3	=	57¾ grotes Flemish.
Grotes Flemish	40	=	1 florin.
How many florins?	=		£1. sterling.

Worked thus:—

$$\frac{25{\cdot}60 \times 100{\cdot}5 \times 57{\cdot}75}{100 \times 3 \times 40} = \begin{array}{ccc} \text{Fl.} & \text{st.} & \text{p.} \\ 12 & 7 & 10 \end{array} \text{ Ans.}$$

100·5
4 × ·4 = ·16

40·20
4

16·080
2·31

16080
48240
32160

3)37·14480

12·38160
20

7·63200
4

2·52800
4

10·11200

By Logarithms.

Nat. No.	Log.
100 =	2
3 =	·47712
40 =	1·60206
	4·07918

Nat. No.	Log.
25·60 =	1·40824
100·5 =	2·00217
57·75 =	1·76155
	5·17196
	4·07918
	1·09278 = Fl. 12 7 +

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	*£1.	=	25·60 francs and centimes.
Francs.....	*3	=	57½ grotes Flemish.
Grotes Flemish.....	*40	=	1* florin.
How many florins?		=	£1.* sterling.

Worked thus: —

$$\frac{25{\cdot}60 \times 57{\cdot}75}{3 \times 40} = \text{Fl. 12 st. 6 p. 5}$$

1 5 = ½ ⅛ charges.

12 7 10. Ans.

11·55
3·20
23100
3465
3)36·9600
12·3200
20
6:4
12
48

By Logarithms.

Nat. No.	Log.		Nat. No.	Log.		
3 =	·47712		11·55 =	1·06258		
			3·20 =	·50515		
				1·56773		
				·47712		
				1·09061 =	12	6 5
		@ ½ ⅛ Chge		218 =	1	5
				1·09279 =	12	7 10

For the ½ per cent charges, I refer to the Auxiliary or Per-centage Table of Logarithms, and finding it to be equivalent to 218, add that number to the logarithm already found of 1·09061.

EQUATION WITHOUT CHARGES,
With the Fixed Number.

*120 25·60
57¼

Worked thus: —

3·20 11·55
~~25·60~~ × ~~57·75~~ = Fl. st. p.
~~100~~ 12 6 5
~~24~~ 1 5 for charges.
3
12 7 10 Ans.

11·55
3·20
23100
3465
3)36·9600
12·3200
20
6·4

By Logarithms.

Nat. No.	Log.	
25·60 =	1·40824	
57·75 =	1·76155	
	3·16979	
*120 =	2·07918	
	1·09061 =	Fl. st. p. 12 6 5
½ % Cha^{s}	218	1 5
	1·09279 =	12 7 10

Having, in London, to draw upon Amsterdam, I find I could do so at 3 months' date, exchange 12 florins 8 stivers per £ sterling, but draw short upon Paris at 25 francs 65 centimes, and order my correspondent there to draw upon Amsterdam at 3 months, which is effected at 58 grotes Flemish for 3 francs, subject to $\frac{3}{4}$ per cent charges: what is thereby the proportional exchange as between London and Amsterdam; and how much per cent shall I have drawn better or worse by the indirect operation?*

Ans. 12 fl. 10 st. proportional exchange; $\frac{25}{32}$ per cent worse.

I remit from London to Amsterdam a bill upon Paris at 25 francs 90 centimes per £ sterling, which is negotiated there at $58\frac{1}{2}$ grotes Flemish for 3 francs, subject to 1 per mil. brokerage;—I could at the same time have remitted a bill upon Amsterdam direct, at 3 months' date, at 12 florins 8 stivers per £ sterling: what is the proportional exchange thereby between London and Amsterdam; and how much per cent better or worse would the direct remittance prove than the indirect, allowing the disadvantage of $2\frac{1}{2}$

* *To find the difference per cent.*—RULE.—Find the difference between the logarithm of the direct exchange and that of the proportional exchange; look then for the difference found in the per-centage Table, and corresponding to it will be found the rate per cent: thus, the difference between

Log.
1·09691 of 12f. 10 and
1·09342 of 12f. 8 is

349

which, looking for in the per-centage Table, I find to be $\frac{25}{32}$ per cent.

months' interest, at the rate of 5 per cent, on the former?

Ans. 12 fl. 10 st. proportional exchange; $\frac{5}{6}\frac{5}{2}$ per cent better.

London remits Amsterdam a bill upon Paris at 26 francs per £ sterling, which is negotiated at 58½ grotes Flemish for 3 francs, subject to 1 per mil. brokerage: what is thereby the proportional exchange between London and Amsterdam?

Ans. 12 fl. 12 st.

LONDON AND AMSTERDAM,

THROUGH

LISBON.

I REMIT from London to Amsterdam a bill upon Lisbon at 50½ pence sterling per milrea, which is negotiated at 41½ grotes Flemish per crusade of 400 reas, subject to 1 per mil. brokerage: what is thereby the proportional exchange as between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence.
Pence	50½	=	1000 reas.
Reas.....	400	=	41½ grotes Flem.
Grotes Fl. with brokerage	1001	=	1000 do. without brokerage.
Grotes Flemish	40	=	1 florin.
How many florins?		=	£1. sterling.

Worked thus: —

$$\frac{\overset{6}{\cancel{240}} \times \overset{50}{\cancel{1000}} \times 41{\cdot}5 \times \cancel{1000}}{\underset{10{\cdot}1}{\cancel{505}} \times \cancel{400} \times 1001 \times \cancel{40}} = \begin{matrix}\text{Fl. st. p.}\\ 12\ 6\ 4\ \text{Ans}\end{matrix}$$

1001	6	
10·1	50	
1001	300	
10010	41·5	
10110·1	)124500·0(	12·314
	101101	20
	233990	6·280
	202202	4
	317880	1·120
	303303	4
	145770	4·480
	101101	
	446690	
	404404	
	42286	

By Logarithms.

Nat. No.		Log.
10·1	=	1·00432
1001	=	3·00043
		4·00475

Nat. No.		Log.
6	=	·77815
50	=	1·69897
41·5	=	1·61805
10	=	1
		5·09517
		4·00475
		1·09042 = Fl. st. 12 6+

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling ..... *£1. = 240* pence.
Pence ..... $50\frac{1}{2}$ = 1000* reas.
Reas ..... *400 = $41\frac{1}{2}$ grotes Flemish.
Grotes Flemish.... *40 = 1* florin.
How many florins? = £1* sterling.

Worked thus: —

$$\frac{\overset{6}{\cancel{240}} \times 1000 \times \overset{8\cdot3}{\cancel{41\cdot5}}}{\underset{10\cdot1}{\cancel{50\cdot5}} \times \cancel{400} \times \cancel{40}} = \text{Fl. st. p. } 12\ 6\ 9$$

5 brokerage = 1 ₹ $\frac{888}{888}$.

12 6 4 Ans.

10
6
—
60
8·3
—
)498·0(12·327
404
—
940
808
—
1320
1212
—
1080
808
—
2720
2828

10·1
4
—
40·4

20
—
6·540
4
—
2·160
4
—
8·640

By Logarithms.

Nat. No.	Log.
10·1 =	1·00432
4 =	·60206
	1·60638

Nat. No.	Log.
6 =	·77815
10 =	1
8·3 =	·91908
	2·69723
	1·60638
	1·09085 = Fl. st. p. 12 6 9
	5 brok.
	12 6 4

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$50\frac{1}{2}$ 15°

$41\frac{1}{2}$

Worked thus:—

$$\frac{15 \times 41{\cdot}5}{50{\cdot}5} = \begin{array}{l}\text{Fl. st. p.}\\ 12\ 6\ 9\\ \quad 5 \text{ brok}^{\text{e}}\\ \hline 12\ 6\ 4 \text{ Ans.}\end{array}$$

$$\begin{array}{r} 41{\cdot}5 \\ 3 \times 5 = 15 \\ \hline 124{\cdot}5 \\ 5 \\ \hline 50{\cdot}5)622{\cdot}5(12{\cdot}326 \\ 505 \qquad 20 \\ \hline 1175 \quad 6{\cdot}520 \\ 1010 \qquad 4 \\ \hline 1650 \quad 2{\cdot}080 \\ 1515 \qquad 4 \\ \hline 1350 \quad 8{\cdot}320 \\ 1010 \\ \hline 3400 \\ 3030 \\ \hline 370 \end{array}$$

By Logarithms.

Nat. No.	Log.
15	= 1·17609
41·5	= 1·61805
	2·79414
50·5	= 1·70329
	1·09085 = Fl. st. 12 6 + 9
	5 brok.
	12 6 4

London, having to draw upon Amsterdam, draws upon Lisbon at 50½ pence sterling per milrea, ordering Lisbon to draw upon Amsterdam, which is done at 42 grotes Flemish per crusade of 400 reas, subject to ½ per cent for charges: what proportional exchange will this establish as between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence sterling.
Pence.....	50½	=	1000 reas.
Reas, without charges ..	100	=	100½ do. with charges.
Reas	400	=	42 grotes Flem.
Grotes Flem.....	40	=	1 florin.
How many florins?		=	£1. sterling.

Worked thus:—

$$\frac{\overset{6}{\cancel{240}} \times \cancel{1000} \times \overset{20\cdot1}{\cancel{100\cdot5}} \times 42}{50\cdot5 \times \cancel{100} \times \cancel{400} \times \cancel{40}} = \begin{matrix}\text{Fl. st. p.}\\ 12\ 10\ 10.\ \text{Ans.}\end{matrix}$$

8

20·1
6
120·6
6 × 7 = 42
723·6
7

50·5
8
404·0)5065·2(12·53
4040
10252
8080
21720
20200
15200
12120
3080

20
10·60
16
9·60

By Logarithms.

Nat. No.	Log.
50·5 =	1·70329
8 =	·90309
	2·60638

Nat. No.	Log.
6 =	·77815
20·1 =	1·30320
42 =	1·62325
	3·70460
	2·60638
	1·09822 = Fl. st. p. 12 10 10

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	*£1.	=	240* pence sterling.
Pence.....	50½	=	1000* reas.
Reas.....	*400	=	42 grotes Flem.
Grotes Flem.....	*40	=	1* florin.
How many florins?		=	£1.* sterling.

Worked thus:—

$$\frac{\overset{6}{\cancel{240}} \times \overset{\cdot 2}{\cancel{1000}} \times \overset{21}{\cancel{42}}}{\underset{10\cdot1}{\cancel{50\cdot5}} \times \underset{\cdot 2}{\cancel{400}} \times \cancel{40}} = \begin{array}{rrr} \text{Fl.} & \text{st.} & \text{p.} \\ 12 & 9 & 8 \\ 1 & 2 & = \frac{1}{2}\,\% \text{ Charges.} \\ \hline 12 & 10 & 10 \text{ Ans.} \end{array}$$

$$\begin{array}{r} 21 \\ 6 \\ \hline 10\cdot1\ )126\cdot0(12\cdot475 \\ 101 \qquad 20 \\ \hline 250 \qquad 9\cdot500 \\ 202 \qquad 16 \\ \hline 480 \qquad 8\cdot000 \\ 404 \\ \hline 760 \\ 707 \\ \hline 530 \\ 505 \\ \hline 25 \end{array}$$

By Logarithms.

Nat. No.	Log.
10·1 =	1·00432

Nat. No.	Log.			
21 =	1·32222			
6 =	·77815			
	2·10037			
	1·00432			
	1·09605 =	Fl. 12	st. 9	p. 8
add for ½ % Cha^{s}	218 =		1	2
	1·09823 =	12	10	10

EQUATION WITHOUT CHARGES,
With the Fixed Number.

$50\frac{1}{2}$ *15
42

Worked thus:—

$$\frac{\overset{3}{\cancel{15}} \times 42}{\underset{10\cdot1}{\cancel{50\cdot5}}} = \begin{array}{rrr} \text{Fl.} & \text{st.} & \text{p.} \\ 12 & 9 & 8 \\ & 1 & 2 = \frac{1}{2}\,\% \text{ charges.} \\ \hline 12 & 10 & 10 \text{ Ans.} \end{array}$$

42
3
10·1)126·0(12·475
101 20
250 9·500
202 16
480 8
404
760
707
530
505
25

By Logarithms.

Nat. No.	Log.
*15 =	1·17609
42 =	1·62325
	2·79934
50·5 =	1·70329
	1·09605
add for $\frac{1}{2}\,\%$ Cha^{s}	218
	1·09823 = Fl. 12 st. 10 p. 10

8

London having to draw upon Amsterdam, could do so at 12 florins 6 stivers per £ sterling, but draws upon Lisbon at 49¾ pence sterling per milrea, and orders Lisbon to take its reimbursement by drawing upon Amsterdam, which is done at 41¼ grotes Flemish per crusade of 400 reas: what is thereby the proportional exchange between London and Amsterdam, the charges being ¾ per cent; and how much per cent better or worse will London have drawn thus indirectly?

Ans. 12 fl. 11 st. proportional exchange.
1 3/32 per cent worse.

Having to remit from London to Amsterdam, I buy a bill upon Lisbon at 51 pence sterling per milrea, and send it to Amsterdam, where it is negotiated at 41½ grotes Flemish per crusade of 400 reas, with a charge of 1/16 per cent brokerage;—at the same time I could have bought a bill upon Amsterdam direct, at 12 florins 10 stivers per £ sterling: what is the proportional exchange by the indirect remittance as between London and Amsterdam; and how much per cent better or worse shall I have remitted by the indirect operation?

Ans. 12 fl. 9 st. proportional exchange.
3/32 per cent worse.

I draw upon Lisbon at 50¾ pence sterling per milrea, and order Lisbon to draw upon Amsterdam, which is done at 42¼ grotes Flemish per crusade of 400 reas: I require to know the proportional exchange as between London and Amsterdam, the charges on the transaction being ¾ per cent?

Ans. 12 fl. 12 st.

LONDON AND AMSTERDAM,

THROUGH

GENOA.

HAVING to remit to Amsterdam, I send thither a bill upon Genoa, bought at 43 pence sterling per pezza, which is negotiated at 90½ grotes Flemish per pezza, chargeable with 1 per mil. brokerage: what is thereby the proportional exchange between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence sterling.
Pence sterling	43	=	1 pezza.
Pezza.....	1	=	90½ grotes Flem.
Grotes Flem. with brokerage	1001	=	1000 do. without brok^{e}
Grotes Flem.	40	=	1 florin.
How many florins?		=	£1. sterling.

London having to draw upon Amsterdam, could do so at 12 florins 6 stivers per £ sterling, but draws upon Lisbon at 49¾ pence sterling per milrea, and orders Lisbon to take its reimbursement by drawing upon Amsterdam, which is done at 41¼ grotes Flemish per crusade of 400 reas: what is thereby the proportional exchange between London and Amsterdam, the charges being ¾ per cent; and how much per cent better or worse will London have drawn thus indirectly?

Ans. 12 fl. 11 st. proportional exchange.
$1\frac{3}{32}$ per cent worse.

Having to remit from London to Amsterdam, I buy a bill upon Lisbon at 51 pence sterling per milrea, and send it to Amsterdam, where it is negotiated at 41½ grotes Flemish per crusade of 400 reas, with a charge of $\frac{1}{16}$ per cent brokerage;—at the same time I could have bought a bill upon Amsterdam direct, at 12 florins 10 stivers per £ sterling: what is the proportional exchange by the indirect remittance as between London and Amsterdam; and how much per cent better or worse shall I have remitted by the indirect operation?

Ans. 12 fl. 9 st. proportional exchange.
$\frac{3}{32}$ per cent worse.

I draw upon Lisbon at 50¾ pence sterling per milrea, and order Lisbon to draw upon Amsterdam, which is done at 42¼ grotes Flemish per crusade of 400 reas: I require to know the proportional exchange as between London and Amsterdam, the charges on the transaction being ¾ per cent?

Ans. 12 fl. 12 st.

LONDON AND AMSTERDAM,

THROUGH

GENOA.

HAVING to remit to Amsterdam, I send thither a bill upon Genoa, bought at 43 pence sterling per pezza, which is negotiated at 90½ grotes Flemish per pezza, chargeable with 1 per mil. brokerage: what is thereby the proportional exchange between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence sterling.
Pence sterling	43	=	1 pezza.
Pezza.....	1	=	90½ grotes Flem.
Grotes Flem. with brokerage	1001	=	1000 do. without brok^{e}
Grotes Flem.	40	=	1 florin.
How many florins?		=	£1. sterling.

months' interest, at the rate of 5 per cent, on the former?

Ans. 12 fl. 10 st. proportional exchange; $\frac{5}{8}$ per cent better.

London remits Amsterdam a bill upon Paris at 26 francs per £ sterling, which is negotiated at 58½ grotes Flemish for 3 francs, subject to 1 per mil. brokerage: what is thereby the proportional exchange between London and Amsterdam?

Ans. 12 fl. 12 st.

LONDON AND AMSTERDAM,

THROUGH

LISBON.

I REMIT from London to Amsterdam a bill upon Lisbon at 50½ pence sterling per milrea, which is negotiated at 41½ grotes Flemish per crusade of 400 reas, subject to 1 per mil. brokerage: what is thereby the proportional exchange as between London and Amsterdam?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence.
Pence	50½	=	1000 reas.
Reas.....	400	=	41½ grotes Flem.
Grotes Fl. with brokerage	1001	=	1000 do. without brokerage.
Grotes Flemish	40	=	1 florin.
How many florins?		=	£1. sterling.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling ..... *£1. = 240* pence sterling.
Pence do. ..... 44 = 1* pezza.
Pezza ..... *1 = 90 grotes Flemish.
Grotes Flemish ..... *40 = 1* florin.
How many florins ? = £1.* sterling.

Worked thus: —

$$\frac{\overset{6}{\cancel{240}} \times 90}{44 \times \cancel{40}} = \text{Fl. st. p. } 12\ 5\ 7$$

1 11 add for $\frac{6}{4}$ $\frac{8}{8}$ charges.

12 7 6 Ans.

90
6

44)540(12·273
44 20
100 5·460
88 4 × 4 = 16
120 1·840
88 4
320 7·360
308
120
132

By Logarithms.

Nat. No.	Log.
44 =	1·64345

Nat. No.	Log.
6 =	·77815
90 =	1·95424
	2·73239
	1·64345
	1·08894
Add for $\frac{3}{4}$ $\frac{8}{8}$ charges....	327
	1·09221 = Fl. st. p. 12 7 +

EQUATION WITHOUT CHARGES,

With the Fixed Numbers.

44 °6
90

Worked thus: —

$$\frac{6 \times 90}{44} = \text{Fl. st. p.}\ 12\ 5\ 7$$

1 11 charges.

12 7 6 Ans.

6
90

44)540(12·273
44

100
88

120
88

320
308

120
132

By Logarithms.

	Nat. No.	Log.
°6 =		·77815
90 =		1·95424
		2·73239
44 =		1·64345
		1·08894
Add for $\frac{3}{4}$ % charges....		327
		1·09221 = Fl. st. p. 12 7 + Ans.

London having to remit to Amsterdam, sends thither a bill upon Genoa, bought at 43½ pence sterling per pezza, which is negotiated there at the exchange of 89½ grotes Flemish per pezza, subject to a charge of 1 per mil. brokerage: what is the proportional exchange thereby established as between London and Amsterdam; and how much per cent better or worse will London have made the remittance than by sending a bill upon Amsterdam, which might have been had at 12 florins 4 stivers per £ sterling?

Ans. 12·6 proportional exchange;
$\frac{13}{16}$ per cent better.

I have to draw upon Amsterdam, but draw, instead, upon Genoa, at 43 pence sterling per pezza, and order Genoa to reimburse itself by drawing upon Amsterdam, which is done at 89¾ grotes Flemish per pezza: what proportional exchange will that give as between London and Amsterdam, contemplating ¾ per cent charges on the transaction, and also an advantage of 3 months' interest, at the rate of 5 per cent per annum?

Ans. 12 fl. 9 st.

London remits to Amsterdam a bill upon Genoa, drawn at the exchange of 43⅛ pence sterling per pezza, which is negotiated there at 88¾ grotes Flemish per pezza, subject to a charge of 1 per mil. brokerage: what proportional exchange will be thereby established as between London and Amsterdam?

Ans. 12 fl. 7 st.

LONDON AND HAMBURGH,

THROUGH

AMSTERDAM.

HAVING to remit to Hamburgh, I send thither a bill upon Amsterdam, bought at 12 florins 2 stivers per £ sterling, which is there negotiated at 105½ rix-dollars Dutch for 100 rix-dollars Hamburgh banco, chargeable with 1 per mil. brokerage: what is thereby the proportional exchange as between London and Hamburgh?

EQUATION, WITH CHARGES.

Sterling.....	£1.	=	12 2 florins and stivers.
Florins.....	2½	=	1 rix-dollar Dutch.
Rix-dollars Dutch	105½	=	100⅝ rix-dollars Hamb. banco.
Do. Hamb. with brok.	1001	=	1000 do without brokerage.
Rix-dollars Hamburgh	1	=	8 shillings Flemish.
How many shillings Flem.?		=	£1. sterling.

Worked thus:—

$$\frac{12{\cdot}1 \times \overset{40}{\cancel{100}} \times \overset{200}{\cancel{1000}} \times 8}{\underset{5}{\cancel{25}} \times \underset{21{\cdot}1}{\cancel{1055}} \times 1001} = \begin{matrix} \text{S.} & \text{g.} \\ 36 & 8 + \end{matrix} \quad \text{Ans.}$$

	12·1	
	40	
21·1	484·0	
1001	200	
211	9680·0	
21100	8	
21121·1	)774400·0(36·66	
	633633	12
	1407670	7·92
	1267266	
	1404040	
	1267266	
	1367740	
	1267266	
	100474	

By Logarithms.

Nat. No.	Log.
21·1 =	1·32428
1001 =	3·00043
	4·32471

Nat. No.	Log.
12·1 =	1·08279
40 =	1·60206
200 =	2·30103
8 =	·90309
	5·88897
	4·32471
	1·56426 = S. 36 g. 8

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling.....	*£1.	=	12 2 florins and stivers.
Florins	*2½	=	1* rix-dollar Dutch.
Rix-dollars Dutch	105½	=	100* do. Hamb. banco.
Do. Hamburgh.....	*1	=	8* shillings Flemish.
How many shillings Flemish ?		=	£1.* sterling.

Worked thus:—

$$\frac{12{\cdot}1 \times \overset{4}{\cancel{100}} \times 8}{\underset{5}{\cancel{2{\cdot}5}} \times \underset{21{\cdot}1}{\cancel{105{\cdot}5}}} = \begin{matrix} \text{s.} & \text{g.} \\ 36 & 8\tfrac{1}{2} \text{ nearly} \\ & \tfrac{1}{2} \text{ for brokerage.} \end{matrix}$$

36 8 Ans.

12·1
4
48·4
8
)387·20(36·7
3165 12
7070 84
6330
7400
7385
15

21·1
5
105·5

By Logarithms.

Nat. No.	Log.
2·5 =	0·39794
105·5 =	2·02325
	2·42119

Nat. No.	Log.
12·1 =	1·08279
100 =	2
8 =	0·90309
	3·98588
	2·42119
	1·56469 = 36$\frac{8}{12}$ = 36 8

s. gr.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

105½ *320

12 2

Worked thus:—

$$\frac{320 \times 12{\cdot}1}{105{\cdot}5} = \text{S. } 36 \text{ fl. } 8\tfrac{1}{2}$$

$\frac{1}{2}$

36 8 Ans.

12·1
320
2420
363
105·5)38720·0(36·7
3165 12
7070 8·4
6330
7400
7385
15

By Logarithms.

Nat. No.	Log.	
*320	= 2·50515	
12·1	= 1·08279	
	3·58794	
105·5	= 2·02325	
	1·56469	= S. 36 fl. 8 +

$\frac{1}{2}$ broke

36 8 Ans.

London draws upon Amsterdam at 12 florins 4 stivers per £ sterling, and instructs Amsterdam to take its reimbursement by drawing upon Hamburgh, which is done at 34½ stivers for 2 marks banco: what is the proportional exchange thereby as between London and Hamburgh, the charges on the operation being ¾ per cent?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	12 2 florins and stivers.
Florin	1	=	20 stivers.
Stivers without charges ...	100	=	100¾ do with charges.
Stivers	34½	=	2 marks banco.
Marks banco.....	3	=	8 shil. Flem.
How many shil. Flem.?		=	£1. sterling.

Worked thus: —

$$\frac{12{\cdot}1 \times \cancel{20} \times \cancel{100{\cdot}75} \times 2 \times \cancel{8}}{\cancel{100} \times \cancel{34{\cdot}5} \times 3} = 37\ 8 \text{ Ans.}$$

(4 · 4.03 · 2 · 20 · 6·9)

s. g.

12·1
4
48·4
4·03
1452
19360
195·052
4 (2 × 2 = 4)
)780·208(37·69
621
1592
1449
1430
1242
1888
1863
25

6·9
3
20·7

12
8·28

By Logarithms.

Nat. No.	Log.
6·9 =	·83885
3 =	·47712
	1·31597

Nat. No.	Log.
12·1 =	1·08279
4 =	·60206
4·03 =	·60531
4 =	·60206
	2·89222
	1·31597
	1·57625 = s. g. 37 8 Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	•£1.	=	12 2 florins and stivers.
Florins	•1	=	20• stivers.
Stivers	34½	=	2• marks banco.
Marks	•3	=	8• shil. Flem.
How many shil. Flem. ?		=	£1. sterling.

Worked thus: —

$$\frac{12{\cdot}1 + \overset{4}{\cancel{20}} + 2 \times 8}{\underset{6{\cdot}9}{\cancel{34{\cdot}5}} \times 3} = \text{S. fl.}\ 37\ 5 \text{ nearly.}$$

3 = ¾ % charges.

37 8 Ans.

	12·1	
	4	
	48·4	
	2	
6·9	96·8	
3	8	
20·7	)774·4(37·4	
	621	12
	1534	4·8
	1449	
	850	
	828	
	22	

By Logarithms.

Nat. No.	Log.
6·9 =	·83885
3 =	·47712
	1·31597

Nat. No.	Log.
12·1 =	1·08279
4 =	·60206
2 =	·30103
8 =	·90309
	2·88897
	1·31597
	1·57300
add for ¾ % Chas.	327
	1·57627 = S. 37 d. 8 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$34\frac{1}{2}$	*$106\frac{2}{3}$
	12 2

Worked thus: —

$$\frac{106\frac{2}{3} \times 12\frac{1}{10}}{34\frac{1}{2}} = \begin{array}{rr} \text{S.} & \text{fl.} \\ 37 & 5 \\ & 3 \text{ Cha}^{\text{s}} \\ \hline 37 & 8 \text{ Ans.} \end{array}$$

$106\frac{2}{3}$
3
320
$12\frac{1}{10}$
3840
32
3872
2
)7744(37
621
1534
1449
85
12
1020(4
828
192

By Logarithms.

Nat. No.	Log.
*$106\frac{2}{3}$	= 2·02802
$12\frac{1}{10}$	= 1·08278
	3·11080
$34\frac{1}{2}$	= 1·53782
	1·57298
add for $\frac{1}{4}$ $\frac{0}{0}$ Cha$^{\text{s}}$.	327
	1·57625 = $37\frac{8}{12}$ or 37 sh. 8 gr.

London having to remit to Hamburgh, sends thither a bill upon Amsterdam, drawn at 12 florins per £ sterling, which is negotiated there at the exchange of 104½ rix-dollars Dutch for 100 rix-dollars Hamburgh banco, subject to $\frac{1}{16}$ per cent brokerage: what is thereby the proportional exchange between London and Hamburgh; and how much per cent better or worse will it be than a direct remittance at 37 shillings 3 grotes Flemish per £ sterling?

Ans. 36 rs. 9 g. proportional exchange;
$1\frac{11}{32}$ per cent worse.

Having money due to me at Hamburgh, I draw for it upon Amsterdam at 11 florins 16 stivers per £ sterling, desiring the latter to take its reimbursement upon Hamburgh, which is done at 35 stivers for 2 marks Hamburgh banco, the charge for commission, brokerage, stamps, &c. being ¾ per cent: what proportional exchange will that yield as between Hamburgh and London, including an advantage in interest of 2½ months, at the rate of 3 per cent per annum?

Ans. 35 sh. 11 gr.

I draw upon Amsterdam at 12 florins 2 stivers per £ sterling, and desire that place to draw upon Hamburgh, which is done at 34⅜ stivers for 2 marks Hamburgh banco, subject to ½ per cent charges: what proportional exchange will that give as between London and Hamburgh; and how much per cent better or worse than a direct draft at 36 shillings 10 grotes Flemish per £ sterling?

Ans. 37 s. 3 gr. proportional exchange;
$1\frac{1}{8}$ per cent worse.

LONDON AND HAMBURGH,

THROUGH

PARIS.

I REMIT to Hamburgh a bill upon Paris at 25 francs per £ sterling, which is negotiated at 25¾ shillings Lubisch for 3 francs, subject to 1 per mil. brokerage: what is thereby the proportional exchange as between London and Hamburgh?

EQUATION WITH CHARGES.

Sterling.....	£1. =	25	francs.
Francs	3 =	25¾	shil. Lubs.
Shil. Lubs. with brokerage.	1001 =	1000	do. without brok^{e}.
Shil. Lubs.....	6 =	1	shil. Flem.
How many shil. Flem.?	=	£1.	sterling:

Worked thus: —

$$\frac{25 \times 25{\cdot}75 \times 1000}{3 \times 6 \times 1001} = \begin{matrix}\text{S. Fl. g.}\\ 35\ \ 8\tfrac{1}{2}\end{matrix}\text{. Ans.}$$

1001	25·75	
3	$5 \times 5 = 25$	
3003	12875	
6	5	
18018	)643750·00(35·72	
	54054	12
	103210	8·64
	90090	
	131200	
	126126	
	50740	
	36036	
	14704	

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
3 =	·47712	25 =	1·39794
6 =	·77815	25·75 =	1·41078
1001 =	3·00043	1000 =	3
	4·25570		5·80872
			4·25570
			S. Fl. g.
			1·55302 = 35 8+ Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling ..... *£1. = 25 francs.
Francs .... *3 = 25¾ shil. Lubs.
Shil. Lubs..... *6 = 1* shil. Flem.
How many shil. Flem.? = £1.* sterling.

Worked thus:—

$$\frac{25 \times 25{\cdot}75}{3 \times 6} = \text{S. Fl. g.}\ 35\ 9$$

½ off for brok*

35 8½ Ans.

25·75
5 × 5 = 25

3 12875
6 5
18)643·75(35·76
54 12
103 9·12
90
137
126
115
108
7

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
3 =	·47712	25 =	1·39794
6 =	·77815	25·75 =	1·41078
	1·25527		2·80872
			1·25527
			1·55345 = S. Fl. g. 35 9

½ off.

35 8½ Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

*18 25

25¼

Worked thus: —

$$\frac{25 \times 25{\cdot}75}{18} = \text{S. 35 g. 9}$$

½ off brok^{e}

35 8½ Ans.

25·75

5 × 5 = 25

12875

5

18)643·75(35·76

54 12

103 9·12

90

137

126

115

108

7

By Logarithms.

Nat. No.		Log.	
25	=	1·39794	
25·75	=	1·41078	
		2·80872	
*18	=	1·25527	
		1·55345	= S. Fl. g. 35 9

½ off brok^{e}

35 8½ Ans.

Having to draw upon Hamburgh, I draw upon Paris at 25 francs 50 centimes per £ sterling, desiring Paris to draw upon Hamburgh, which is done at 183 francs for 100 marks banco, charging $\frac{3}{4}$ per cent for commission, &c.: what is thereby the proportional exchange between London and Hamburgh?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	25·50 francs and centimes.
Francs.....	183	=	100 marks.
Marks, without charges	100	=	100¾ do. with charges.
Marks	3	=	8 shillings Flem.
How many shillings Flem. ?		=	£1. sterling.

$$\frac{25{\cdot}5 \times 100^{0} \times 100{\cdot}75 \times 8}{183 \times 100 \times 3} = \text{S. Fl. g. } 37\ 5 \text{ Ans.}$$

* Having found that the insertion of a bar across the cancelled numbers consumes much time in the process of printing the Work, they will henceforth be omitted; and when numbers are to be considered as cancelled altogether, it will be indicated by a small ^{0} being placed over them; and when only partially cancelled or reduced, the result will be indicated by a figure, expressive of such result, being placed over the original number.

25·5
100·75
1275
1785
25500
2569·125
8
20553·000(37·437
1647 12
4083 5·244
3843
2400
2196
2040
1647
3930
3843
87

183 × 3 = 549

By Logarithms.

Nat. No.	Log.
183 =	2·26245
8 =	·47712
	2·73957

Nat. No.	Log.
25·5 =	1·40654
100¾ =	2·00325
8 =	·90309
	4·31288
	2·73957
	1·57331 = S. Fl. g. 37 5 Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling..... *£1. = 25·50 francs and centimes.
Francs..... 183 = 100* marks.
Marks ..... *3 = 8* shillings Flemish.
How many shillings Flem. ? = £1.* sterling.

Worked thus:—

$$\frac{25{\cdot}5 \times 100 \times 8}{183 \times 3} = \begin{matrix} \text{S. Fl. g.} \\ 37\ 2 \end{matrix}$$

3 add for $\frac{3}{4}$ $\frac{0}{0}$ charges.

37 5 Ans.

	25·5	
183	2550·0	
3	8	
549	)20400·0(	37·15
	1647	12
	3930	1·80
	3843	
	870	
	549	
	3210	
	2745	
	465	

By Logarithms.

Nat. No.	Log.
183 =	2·26245
3 =	·47712
	2·73957

Nat. No.	Log.
25·5 =	1·40654
100 =	2
8 =	·90309
	4·30963
	2·73957
	1·57006 = 37 2 S. Fl. g.
Add for $\frac{3}{4}$ $\frac{0}{0}$ charges.....	327 = 3 add for charges.
	1·57333 = 37 5 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

183 *266⅔

25½

Worked thus:—

$$\frac{266\frac{2}{3} \times 25\frac{1}{2}}{183} = \text{S. Fl. g. } 37\ 2$$

3 = ¼ % charges.

37 5 Ans.

266⅔

3

800

25½

20000

400 = ½

183 | 549)20400(37·15

3 | 1647 12

549 | 3930 1·80

3843

870

549

3210

2745

465

By Logarithms.

Nat. No.	Log.	
*266⅔ =	2·42597	
25½ =	1·40654	
	3·83251	
183 =	2·26245	
	1·57006 =	S. Fl. g. 37 2
Add for ¼ % charges..	327 =	3 charges.
	1·57333 =	37 5 Ans.

London remits to Hamburgh a bill upon Paris, at 25 francs 20 centimes per £ sterling, which is there negotiated at 25½ shillings Lubisch for 3 francs, subject to 1 per mil. brokerage: what is thereby the proportional exchange between London and Hamburgh, including an advantage of 2 months' interest, at the rate of 5 per cent per annum?

Ans. 36 sh.

I draw upon Paris at 25 francs 60 centimes per £ sterling, desiring payment to be taken by drawing upon Hamburgh, which is done at the exchange of 183½ francs for 100 marks banco, subject to ⅝ per cent charges: what is thereby the proportional exchange as between London and Hamburgh; and how much per cent better or worse shall I have drawn thus than by drawing direct, which I could have done at 37 shillings 4 grotes Flemish per £ sterling?

Ans. 37 s. 6 gr. proportional exchange;
$\frac{7}{16}$ per cent worse.

Having to remit to Hamburgh, I send thither a bill upon Paris, bought at 25 francs 45 centimes per £ sterling, which is there negotiated at 26 shillings Lubisch for 3 francs: what is thereby the proportional exchange as between London and Hamburgh, allowing a charge of $\frac{1}{16}$ per cent for brokerage?

Ans. 36 s. 9 gr.

LONDON AND HAMBURGH,

THROUGH

LISBON.

HAVING to remit to Hamburgh, I send thither a bill upon Lisbon, bought at 50¼ pence sterling per milrea, which is there negotiated at 37 grotes Flemish for 1 crusade of 400 reas, subject to one per mil. brokerage: what proportional exchange will that yield as between London and Hamburgh?

EQUATION WITH CHARGES.

Sterling	£1.	=	240 pence.
Pence	50¼	=	1000 reas.
Reas	400	=	37 grotes Flemish.
Grotes Flem. with brokerage	1001	=	1000 do. without brokerage.
Grotes Flemish	12	=	1 shilling Flemish.
How many shillings Flemish?		=	£1. sterling.

Worked thus:—

$$\frac{\overset{5}{\overset{60}{240}} \times \overset{10}{1000} \times 37 \times \overset{40}{\overset{200}{1000}}}{\underset{10{\cdot}05}{\underset{2{\cdot}01}{50{\cdot}25}} \times \underset{0}{400} \times 1001 \times \underset{0}{12}} = \begin{matrix}\text{S. Fl. g.}\\ 36\ \ 9\ \text{Ans.}\end{matrix}$$

2·01	37	
1001	5	
201	1850	
20100	40	
2012·01	)74000·00(	36·77
	603603	12
	1363970	9·24
	1207206	
	1567640	
	1408407	
	1592330	
	1408407	
	183923	

By Logarithms.

Nat. No.	Log.
2·01 =	0·30320
1001 =	3·00043
	3·30363

Nat. No.	Log.
5 =	·69897
10 =	1
37 =	1·56820
40 =	1·60206
	4·86923
	1·30363
	1·56560 = 36 9 Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling.....	*£1.	=	240*	pence.
Pence	$50\frac{1}{2}$	=	1000*	reas.
Reas	*400	=	37	grotes Flemish.
Grotes Flem.....	*12	=	1*	shilling Flemish.
How many shillings Flem. ?		=	£1.*	sterling.

Worked thus: —

$$\frac{240 \times 1000 \times 37}{50{\cdot}25 \times 400 \times 12} = \text{S. Fl. } 36\ 9\tfrac{1}{2}$$

(0, 5, 60, 10, 10·05, 0, 0)

$\frac{1}{2}$ for brokerage.

36 9 Ans.

10·05)370·00(36·8
3015 12
6850 9·60
6030
8200
8040
160

By Logarithms.

Nat. No.	Log.
10·05 =	1·00217

Nat. No.	Log.
10 =	1
37 =	1·56820
	2·56820
	1·00217
	1·56603 = S. Fl. 36 9$\frac{1}{2}$

$\frac{1}{2}$ brokerage.

36 9 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$50\frac{1}{2}$ ·50
37

Worked thus: —

$$\frac{50 \times 37}{50{\cdot}25} = \begin{matrix} \text{S. Fl. g.} \\ 36\ 9\frac{1}{2} \\ \frac{1}{2}\text{ brokerage.} \\ \hline 36\ 9 \end{matrix}$$

37
50
50·25)1850·00(36·8
15075 12
34250 9·6
30150
41000
40200
800

By Logarithms.

Nat. No.		Log.
·50	=	1·69897
37	=	1·56820
		3·26717
$50\frac{1}{2}$	=	1·70114
		1·56603

= S. Fl. g. 36 $9\frac{1}{2}$
$\frac{1}{2}$ brokerage.
36 9 Ans.

London draws upon Lisbon at 49½ pence sterling per milrea, and desires Lisbon to pay itself by drawing upon Hamburgh, which is done at 36 grotes Flemish per crusade of 400 reas: what is thereby the proportional exchange between London and Hamburgh, the charges being ¾ per cent?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence.
Pence.....	49½	=	1000 reas
Reas, without charges..	100	=	100¾ do. with charges.
Reas.....	400	=	36 grotes Flemish.
Grotes Flemish	12	=	1 shilling Flemish.
How many shillings Flemish?		=	£1. sterling.

Worked thus:—

$$\frac{\overset{0}{20} \quad \overset{2}{200} \quad \overset{}{20{\cdot}15} \quad \overset{0}{9}}{\underset{9{\cdot}9}{49{\cdot}5} \times \underset{5}{100} \times \underset{4}{400} \times \underset{0}{12}} = \text{S. Fl. g.} \; 36\ 7\tfrac{1}{2}$$

$$\underset{1{\cdot}1}{1{\cdot}1)}\begin{array}{r} 20{\cdot}15 \\ 2 \\ \hline 40{\cdot}30 \\ \hline 36{\cdot}63 \\ 12 \\ \hline 7{\cdot}56 \end{array}$$

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
1·1	= ·04139	2	= ·30103
		20·15	= 1·30428
			1·60531
			·04139
			S. Fl. g.
			1·56392 = 36 7½ Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	*£1.	=	240* pence.
Pence	49½	=	1000* reas.
Reas.....	*400	=	36 grotes Flem.
Grotes Flemish.....	*12	=	1* shilling Flemish.
How many shillings Flemish?		=	£1.* sterling.

Worked thus: —

$$\frac{\overset{0}{\overset{5}{\overset{60}{240}}} \times \overset{10}{1000} \times \overset{4}{36}}{\underset{9\cdot9}{\underset{1\cdot1}{49\cdot5}} \times \underset{0}{400} \times \underset{0}{12}} = \begin{array}{l} \text{S. Fl. g.} \\ 36\ \ 4\tfrac{1}{2} \text{ nearly} \\ \quad\ \ 3 \text{ for charges } \tfrac{3}{4}\ \tfrac{0}{0}. \\ \hline 36\ \ 7\tfrac{1}{2} \text{ Ans.} \end{array}$$

$$1\cdot1\overline{)40\cdot0}$$

$$36\cdot36$$

$$12$$

$$4\cdot32$$

By Logarithms.

Nat. No.	Log.
1·1 =	·04139

Nat. No.	Log.
10 =	1
4 =	·60206
	1·60206
	·04139
	1·56067

= 36 S. Fl. 4½ g.
3 charges.

36 7½ Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$49\frac{1}{2}$ *50
36

Worked thus:—

$$\frac{\overset{10}{50} \times \overset{4}{36}}{\underset{9\cdot9}{\underset{1\cdot1}{49\cdot5}}} = \begin{array}{rl} \text{S. Fl. g.} & \\ 36\ 4\frac{1}{2} & \text{nearly} \\ 3 & \text{for } \frac{3}{4}\ \frac{0}{0} \text{ charges.} \\ \hline 36\ 7\frac{1}{2} & \text{Ans.} \end{array}$$

1·1)40·0

36·36
12

4·32

By Logarithms.

Nat. No.	Log.	
*50 =	1·69897	
36 =	1·55630	
	3·25527	
49·5 =	1·69461	
	1·56066	
Add for $\frac{3}{4}\ \frac{0}{0}$ charges..	327	
	1·56393 =	S. Fl. g. 36 $7\frac{1}{2}$ Ans.

Having to remit to Hamburgh, I send thither a bill upon Lisbon, drawn at 50 pence sterling per milrea, which is there negotiated at 36¼ grotes Flemish per crusade of 400 reas, chargeable with a brokerage of 1 per mil.: what is thereby the proportional exchange between London and Hamburgh; and how much per cent better or worse shall I have remitted thus than by sending a bill upon Hamburgh direct, at 37 shillings Flemish per £ sterling, contemplating in the former an advantage of two months' interest, at the rate of 5 per cent per annum?

Ans. 36 sh. 6½ gr. proportional exchange;
1¼ per cent better.

London having money due to it from Hamburgh, draws for it upon Lisbon at 50¼ pence sterling per milrea, ordering payment to be taken by drawing upon Hamburgh, which is done at 35½ grotes Flemish per crusade of 400 reas, whereby charges are incurred amounting to ¾ per cent: what is thereby the proportional exchange as between London and Hamburgh?

Ans. 35 sh. 7 gr.

I draw upon Lisbon at 51 pence sterling per milrea, and desire that place to draw upon Hamburgh, which it does at 36¼ grotes Flemish per crusade of 400 reas, subject to ¾ per cent charges: what proportional exchange will that give between London and Hamburgh; and how much per cent better or worse than a direct draft upon Hamburgh at 36 shillings 10 grotes Flemish per £ sterling?

Ans. 35 sh. 10 gr. proportional exchange;
$2\frac{23}{32}$ per cent better.

LONDON AND HAMBURGH,

THROUGH

MADRID.

I REMIT to Hamburgh a bill upon Madrid, taken at 34½ pence sterling per dollar of exchange, which is negotiated at 89½ grotes Flemish per 1 ducat of exchange, subject to 1 per mil. brokerage: what is thereby the proportional exchange between London and Hamburgh?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence.
Pence.....	34½	=	272 marv^{a} d. p. or 1 d^{r} of ex^{e}
Marv^{a} d. p. or 1 duc^{t} exch^{e}	375	=	89½ grotes Flemish.
Grotes Flem. with charges	1001	=	1000 do. without charges.
Grotes Flem.....	12	=	1 shilling Flemish.
How many shillings Flemish?		=	£1. sterling.

Worked thus: —

$$\frac{\overset{80}{240} \times 272 \times \overset{17\cdot9}{89\cdot5} \times \overset{8\ 40\ 200}{1000}}{\underset{6\cdot9}{34\cdot5} \times \overset{75\ 15\ 3\ 0}{375} \times 100\cdot1 \times 12} = \text{S. Fl. g.} \quad 37\ 7 \text{ Ans.}$$

		272	
		80	
		21760	
	1001	17·9	
	6·9	195840	
	9009	152320	
	6006	21760	
	6906·9	389504·0	
	12	8	
	82882·8	)3116032·0(37·6	
		2486484	12
		6295480	72
		5801796	
		4936840	
		4972968	

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
6·9 =	·83885	80 =	1·90309
1001 =	3·00043	272 =	2·43457
12 =	1·07918	17·9 =	1·25285
	4·91846	8 =	·90309
			6·49360
			4·91846
			1·57514 = S. Fl. g. 37 7 Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling.....	•£1.	=	240• pence.
Pence	•34½	=	272• maravadies d. p.
Maravadies d. p.	•375	=	89½ grotes Flemish.
Grotes Flemish.....	•12	=	1• shilling Flemish.
How many shillings Flemish?		=	£1.• sterling.

Worked thus: —

$$\frac{240 \times 272 \times 89{\cdot}5}{34{\cdot}5 \times 375 \times 12} = \text{S. Fl. g. } 37\ 7\tfrac{1}{2}$$

(4, 20; 6·9, 75, 0)

½ off for 1% 000/000 brokerage.

37 7 Ans.

	272	
	4	
	1088	
75	17·9	
6·9	9792	
675	7616	
450	1088	
517·5	)19475·2(	37·63
	15525	12
	39502	7·56
	36225	
	32770	
	31050	
	17200	
	15525	
	1675	

By Logarithms.

Nat. No.	Log.
75 =	1·87506
6·9 =	·83885
	2·71391

Nat. No.	Log.
4 =	·60206
272 =	2·43457
17·9 =	1·25285
	4·28948
	2·71391
	1·57557 = S. Fl. g. 37 7½
	½ brok•
	37 7 Ans.

EQUATION WITHOUT CHARGES,
With the Fixed Number.

$$34\tfrac{1}{2} \quad {}^{*}14\tfrac{114}{225} \quad 89\tfrac{1}{2}$$

Worked thus: —

$$\frac{14\frac{114}{225} \times 89\frac{1}{2}}{34\frac{1}{2}} = 37\ 7\tfrac{1}{2}$$

S. Fl. g.

$\frac{1}{2}$ off for brokerage.

37 7 Ans.

225
14
900
225
114
3264
89½
29376
26112
1632
)292128(37
23289
59238
54341
4897
12
58764(7
54341
4423

225
34½
900
675
113
7763

By Logarithms.

Nat. No.	Log.	
* Fixed log. =	1·16157	
89½ =	1·95182	
	3·11339	
34½ =	1·53782	
	1·57557	S. Fl. g. 37 7½
		½ brok^e
		37 7 Ans.

The great advantage of the use of logarithms is here very conspicuous, for the natural fixed number, $14\frac{1}{2}\frac{1}{2}\frac{4}{5}$, cannot be worked more profitably than is done above, (by decimals it cannot, for it would give an infinite decimal,) whilst I find the fixed logarithm at once for the result of the * numbers in the preceding equation, thus:—

Nat. No.	Log.	Nat. No.	Log.
375 =	2·57403	240 =	2·38021
12 =	1·07918	272 =	2·43457
	3·65321		4·81478
			3·65321
			1·16157 fixed logarithm.

Having money owing to me at Hamburgh, I draw upon Madrid at 35 pence sterling per dollar of exchange, instructing Madrid to take its reimbursement upon Hamburgh, which it does at 90½ grotes Flemish for 1 ducat of exchange, charging ½ per cent for commission, &c.: what is thereby the proportional exchange as between London and Hamburgh?

EQUATION WITH CHARGES.

Sterling.....	£1.	= 240	pence.
Pence.....	35	= 272	marv^{s} d. p. or 1 doll. o. ex.
Marv^{s} d. p. or 1 duc. o. ex.	375	= 90½	grotes Flem.
Grotes Fl. without cha^{s}..	100	= 100½	do. with charges.
Grotes Flemish	12	= 1	shil. Flem.
How many shil. Flem.?		= £1.	sterling.

Worked thus: —

$$\frac{\overset{0}{\underset{20}{240}} \times 272 \times \overset{18\cdot1}{90\cdot5} \times \overset{20\cdot1}{100\cdot5}}{\underset{7}{35} \times \underset{75}{375} \times \underset{5}{100} \times \underset{0}{12}} = \begin{matrix} \text{S. Fl. g.} \\ 37\ 8 \end{matrix} \text{ Ans.}$$

272
18·1
272
2176
272
4923·2
20·1
49232
984640
)98956·32(37·69
7875 12
20206 8·28
18375
18313
15750
25632
23625
2007

75
7
525
5
2625

By Logarithms.

Nat. No.	Log.
7 =	·84510
75 =	1·87506
5 =	·69897
	3·41913

Nat. No.	Log.
272 =	2·43457
18·1 =	1·25768
20·1 =	1·30320
	4·99545
	3·41913
	1·57632

S. Fl. g.
= 37 8 Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	*£1. =	240* pence.
Pence.....	35 =	272* marv*
Marv*	*375 =	90½ grotes Flem.
Grotes Flem	*12 =	1* shil. do.
How many shil. Flem.? =		£1.* sterling.

Worked thus: —

$$\frac{\overset{4}{20} \times 272 \times \overset{18\cdot1}{90\cdot5}}{\underset{7}{35} \times \underset{75}{375} \times \underset{0}{12}} = \begin{array}{rr} \text{S. Fl.} & \text{g.} \\ 37 & 6 \\ & 2 \text{ for } \frac{1}{2} \text{ \% charges.} \\ \hline 37 & 8 \text{ Ans.} \end{array}$$

272
4
1088
18·1
1088
75 8704
7 1088
525)19692·8(37·5
1575 12
3942 6·0
3675
2678
2625
53

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
7 =	·84510	4 =	·60206
75 =	1·87506	272 =	2·43457
	2·72016	18·1 =	1·25768
			4·29431
			2·72016
			1·57415
		Add for ½ % charges..	218
			1·57633 = 37 8 Ans.

S. Fl. g.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

35 *$14\frac{114}{225}$

$90\frac{1}{2}$

Worked thus:—

$\frac{14\frac{114}{225} \times 90\frac{1}{2}}{35}$ = S. Fl. g. 37 6

2 for $\frac{1}{2}$ % charges.

37 8 Ans.

225
14
900
225
114
3264
90½
293760
1632
)295392(37·5
23625 12
59142 6·0
55125
40170
39375
795

225
5 × 7 = 35
1125
7
7875

By Logarithms.

	Nat. No.	Log.
*Fixed Log.	=	1·16157
$90\frac{1}{2}$	=	1·95665
		3·11822
35	=	1·54407
		1·57415
Add for $\frac{1}{2}$ % charges..		218
		1·57633 = S. Fl. g. 37 8 Ans.

London having to remit to Hamburgh, sends thither a bill upon Madrid, drawn at the exchange of 34¾ pence sterling per dollar of exchange, which is there negotiated at 89¾ grotes Flemish per ducat of exchange, chargeable with 1 per mil. brokerage: what proportional exchange will that give as between London and Hamburgh, contemplating an advantage of 2 months' interest, at the rate of 5 per cent per annum?

Ans. 37 s. 10 gr.

Hamburgh owes me money; but instead of drawing for it direct, I draw upon Madrid at 34½ pence sterling per dollar of exchange, instructing this place to reimburse itself for my draft by drawing upon Hamburgh, which it does at 90¼ grotes Flemish per ducat of exchange, charging me ¾ per cent for commission, &c.: what proportional exchange will that yield as between London and Hamburgh, and how much per cent better or worse shall I have drawn than by drawing direct, at 37 shillings 2 grotes Flemish per £ sterling?

Ans. 38 s. 3 g. proportional exchange;
2⅝ per cent worse.

I remit to Hamburgh a bill upon Madrid, which I took at 34¼ pence sterling per dollar of exchange; this is negotiated there at 89¼ grotes Flemish per ducat of exchange, subject to 1 per mil. brokerage: what is thereby the proportional exchange as between London and Hamburgh?

Ans. 37 sh. 9 g.

LONDON AND PARIS,

THROUGH

AMSTERDAM.

LONDON remits to Paris a bill upon Amsterdam, taken at 12 florins 5 stivers per £ sterling, which is negotiated there at 57½ grotes Flemish for 3 francs, chargeable with 1 per $\frac{0\,0\,0}{0\,0\,0}$ brokerage: what is thereby the proportional exchange as between London and Paris?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	12 5 florins and stivers.
Florin.....	1	=	40 grotes Flemish.
Grotes Flemish.....	57½	=	3 francs.
Francs, with brokerage	1001	=	1000 francs without brokerage.
How many florins?		=	£1. sterling.

Worked thus:—

$$\frac{\overset{2\cdot45}{12\cdot25} \times 40 \times 3 \times \overset{200}{1000}}{\underset{11\cdot5}{\underset{2\cdot3}{57\cdot5}} \times 1001} = \begin{matrix}\text{Fcs. cs.}\\ 25\ 54\end{matrix} \text{ Ans.}$$

		2·45
		40
	1001	98·00
	2·3	3
	3003	294·00
	2002	200
	2302·3	)58800·00(25·54
		46046
		127540
		115115
		124250
		115115
		91350
		92092

By Logarithms.

Nat. No.		Log.
2·3	=	·36173
1001	=	3·00043
		3·36216

Nat. No.		Log.
2·45	=	·38917
40	=	1·60206
3	=	·47712
200	=	2·30103
		4·76938
		3·36216
		1·40722 = 25 54 Ans.

Fcs. cs.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling.....	*£1.	12 5	florins and stivers.
Florin.....	*1 =	40*	grotes Flemish.
Grotes Flemish.....	57½ =	3*	francs.
How many francs?	=	£1.*	sterling.

Worked thus:—

$$\frac{\overset{2\cdot45}{12\cdot25} \times \overset{8}{40} \times 3}{\underset{11\cdot5}{\underset{2\cdot3}{57\cdot5}}} = \text{Fcs. cs. } 25\ 56\tfrac{1}{2}$$

2½ deduct for brokerage.

25 54 Ans.

2·45
8
19·60
3
2·3)58·80(25·56½
46
128
115
130
115
150
138
12

By Logarithms.

Nat. No.	Log.
2·3 =	·36173

Nat. No.	Log.
2·45 =	·38917
8 =	·90309
3 =	·47712
	1·76938
	·36173
	1·40765 = Fcs. cs. 25 56½

2½ brok*

25 54 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$57\frac{1}{2}$ *120
12·5

Worked thus:—

$$\frac{\overset{24}{120} \times \overset{2\cdot45}{12\cdot25}}{\underset{11\cdot5}{\underset{2\cdot3}{57\cdot5}}} = \begin{array}{r} \text{Fcs. cs.} \\ 25\ 56\frac{1}{2} \\ 2\frac{1}{2} \text{ for brokerage.} \\ \hline 25\ 54 \text{ Ans.} \end{array}$$

2·45
3 × 8 = 24
7·35
8
2·3)58·80(25·56½
46
128
115
130
115
150
138
12

By Logarithms.

Nat. No.		Log.
*120	=	2·07918
12·25	=	1·08814
		3·16732
		1·75967
		1·40765

Fcs. cs.
= 25 56½
½ brokerage.
25 54 Ans.

Having money owing to me at Paris, I draw upon Amsterdam at 12 florins 10 stivers per £ sterling, which place pays itself by drawing upon Paris at 56½ grotes Flemish for 3 francs, charging me ½ per cent on the transaction: what will be thereby the proportional exchange as between London and Paris?

EQUATION WITH CHARGES.

Sterling	£1.	=	12 10 florins and stivers.
Florin.....	1	=	40 grotes Flemish.
Grotes Fl. without ch^{es}. ..	100	=	100½ do. with charges.
Grotes Flemish.....	56½	=	3 francs.
How many francs?		=	£1. sterling.

Worked thus: —

$$\frac{\overset{2\cdot5}{12\cdot5} \times \overset{2}{40} \times \overset{20\cdot1}{100\cdot5} \times 3}{\underset{20}{100} \times \underset{11\cdot3}{56\cdot5}} = \text{Fcs. cs. } 26\ 68 \text{ Ans.}$$

0

2·5
2
—
5·0
20·1
—
100·50
3
—

11·3)301·50(26·68
226
—
755
678
—
770
678
—
920
904
—
16

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
11·3 =	1·05308	2·5 =	·39794
		2 =	·30103
		20·1 =	1·30320
		3 =	·47712
			2·47929
			1·05308
			1·42621 = Fcs. cs. 26 68 Ans.
		x	

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling..... *£1. = 12 10 florins and stivers.
Florin ..... *1 = *40 grotes Flemish.
Grotes Flemish.. 56½ = *3 francs.
How many francs ? = *£1. sterling.

Worked thus: —

$$\frac{12{\cdot}5 \times 40 \times 3}{56{\cdot}5} = \text{Fcs. cs. } 26\ 55$$

13 added for ½ % charges.

26 68 Ans.

2·5
40
100·0
3
11·3)300·0(26·55
226
740
678
620
565
550
565

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
56½ =	1·75205	12·5 =	1·09691
		40 =	1·60206
		3 =	·47712
			3·17609
			1·75205
			1·42404
	Add for ½ % charges		218
			1·42622 = Fcs. cs. 26 68 Ans.

EQUATION WITHOUT CHARGES,
With the Fixed Number.

56½	·120
	12 10

Worked thus: —

$$\frac{120 \times 12{\cdot}5}{56{\cdot}5} = \text{Fcs. cs.}$$

(120 × 12·5 over 56·5; 2·5 above 12·5; 11·3 below 56·5)

26 55

13 for ½ % charges.

26 68 Ans.

2·5
120
11·3)300·0(26·55
226
740
678
620
565
550
565

By Logarithms.

Nat. No.		Log.
·120	=	2·07918
12·5	=	1·09691
		3·17609
56·5	=	1·75205
		1·42404
Add for ½ % charges		218
		1·42622 = Fcs. cs. 26 68 Ans.

London remits to Paris a bill upon Amsterdam, bought at 11 florins 15 stivers per £ sterling, which is there negotiated at 56¾ grotes Flemish for 3 francs, chargeable with 1 per mil. brokerage: what is thereby the proportional exchange as between London and Paris; and how much per cent better or worse than a direct remittance, at 25 francs 26 centimes per £ sterling?

Ans. 24 fcs. 82 cs. proportional exchange;
1¾ per cent worse.

I draw upon Amsterdam at 12 florins 2 stivers per £ sterling, desiring reimbursement to be taken upon Paris, which is done at 57 grotes Flemish for 3 francs: what is thereby the proportional exchange as between London and Paris, contemplating also ¾ per cent charges, and an advantage in interest of 2 months, at the rate of 5 per cent per annum?

Ans. 25 fcs. 24 cs.

Being indebted to Paris, I remit thither a bill upon Amsterdam, drawn at 12 florins 1 stiver per £ sterling, which is there negotiated at 56¾ grotes Flemish per £ sterling, subject to 1 per mil. brokerage: what proportional exchange will that yield as between London and Paris?

Ans. 25 fcs. 45 cs.

LONDON AND PARIS,

THROUGH

HAMBURGH.

HAVING to remit money to Paris, I send thither a bill upon Hamburgh, taken at 37 shillings 3 grotes Flemish per £ sterling, which is there negotiated at 182 francs for 100 marks banco, chargeable with 1 per mil. brokerage: what proportional exchange will that establish as between London and Paris?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	37 3 shill. and grotes Flem.
Shillings Flemish.....	8	=	3 marks.
Marks	100	=	182 francs.
Francs, with brokerage ..	1001	=	1000 do. without brok^{e}.
How many francs?		=	£1. sterling.

Worked thus :—

$$\frac{37{\cdot}25^{7{\cdot}45} \times 3 \times 182 \times 1000^{50}}{8 \times 100^{20} \times 1001^{0}} = \text{Fcs. cs. } 25\ 40 \text{ Ans.}$$

		7·45
		3
		22·35
		182
		4470
		17880
		2235
1001		406770
8		50
8008		)203385·00(25·39
		16016
		43225
		40040
		31850
		24024
		78260
		72072
		6188

By Logarithms.

Nat. No.	Log.
8 =	·90309
1001 =	3·00043
	3·90352

Nat. No.	Log.
7·45 =	·87216
3 =	·47712
182 =	2·26007
50 =	1·69897
	5·30832
	3·90352
	1·40480 = Fcs. cs. 25 40 Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling..... *£1. = 37 3 shill. and grotes Flem.
Francs..... ... *8 = 3* marks.
Marks ..... *100 = 182 francs.
How many francs? = £1. sterling.

Worked thus:—

$$\frac{37{\cdot}25 \times 3 \times 182}{8 \times 100} = \begin{array}{l} \text{Fcs. cs.} \\ 25\ 42\tfrac{1}{2} \text{ nearly.} \\ \quad 2\tfrac{1}{2} \text{ for brokerage.} \\ \hline 25\ 40 \text{ Ans.} \end{array}$$

1·49
7·45
20
4

```
1·49
   3
------
4·47
 182
------
 894
3576
 447
------
)813·54(25·42
 64
---
173
160
---
135
128
---
 74
 64
---
 10
```

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
8 × 100 = 800 =	2·90309	37·25 =	1·57113
		3 =	·47712
		182 =	2·26007
			4·30832
			2·90309
			1·40523 = 25 42½
			2½ brok^e.
			25 40 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

*266⅔ 37 3
182

Worked thus: —

$$\frac{37\frac{1}{4} \times 182}{266\frac{2}{3}}$$

Fc. cs.
= 25 42½ nearly.
2½ brokerage.
25 40 Ans.

182
37¼
1274
546
45
6779
3
203,37
266⅔
3
8,00
25 42+

By Logarithms.

Nat. No.	Log.
37¼ =	1·57113
182 =	2·26007
	3·83120
Fixed Log. =	2·42597
	1·40523 = 25 42½
	2½ brok^e.
	25 40 Ans.

London draws upon Hamburgh at 37 shillings 6 grotes Flemish per £ sterling, ordering it to pay itself by drawing upon Paris, which is done at 25¾ shillings Lubisch for 3 francs, charging ½ per cent for commission, &c.: what proportional exchange will that give as between London and Paris?

EQUATION WITH CHARGES.

Sterling	£1.	=	37 6 shil. and grotes Flem.
Shillings Flem	1	=	6 shil. Lubs.
Shil. Lubs. without cha^{s}	100	=	100½ do. with cha^{s}
Shil. Lubs	25¾	=	3 francs.
How many francs?		=	£1. sterling.

Note.—The working is in the following page, as it could not be entirely got in here.

Worked thus: —

$$\frac{37{\cdot}5 \times 6 \times 100{\cdot}5 \times 3}{100 \times 25{\cdot}75} = \text{Fcs. cs. } 26\ 34 \text{ Ans.}$$

(7·5 over 37·5; 20·1 over 100·5; 20 over 100; 4 over 25·75)

	7·5
	6
	45·0
	20·1
	450
	9000
25·75	904·50
4	3
103·00	2713·50 (26·34
	20600
	65350
	61800
	35500
	30900
	46000
	41200
	4800

By Logarithms.

Nat. No.		Log.
25·75	=	1·41078
4	=	·60206
		2·01284

Nat. No.		Log.
7·5	=	·87506
20·1	=	1·30320
6	=	·77815
3	=	·47712
		3·43353
		2·01284
		1·42069 = Fcs. cs. 26 34 Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling..... *£1. = 37 6 shil. and grotes Flem.
Shil. Flem..... *1 = 6* shil. Lubs.
Shil. Lubs..... 25¾ = 3* francs.
How many francs? = £1.* sterling.

Worked thus:—

$$\frac{37{\cdot}5 \times 6 \times 3}{25{\cdot}75} = \text{Fcs. cs. } 21\ 21$$

13 for ½ % charges.

26 34 Ans.

1·5
7·5
5·15
1·03

1·5
6
9·0
3

1·03)27·00(26·21
206
640
618
220
206
140
103
37

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
1·03 =	·01284	1·5 × 6 × 3 = 27·0 =	1·43136
			·01284
			1·41852
		Add for ½ % charges	218
			Fcs. cs.
			1·42070 = 26 34 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$25\frac{3}{4}$ •18
37·6

Worked thus: —

1·5
7·5
$\frac{18 \times 37{\cdot}5}{25{\cdot}75}$ = Fcs. cs. 26 21
5·15 13 for charges.
1·03
26 34 Ans.

18
3 × 5 = 15
54
5
1·03)27·00(26·21
206
640
618
220
206
140
103
37

By Logarithms.

Nat. No.	Log.
•18 =	1·25527
37·5 =	1·57403
	2·82930
$25\frac{3}{4}$ =	1·41078
	1·41852
Add for $\frac{1}{2}$ % charges	218
	1·42070 = Fcs. cs. 26 34 Ans.

London draws upon Hamburgh at 37 shillings 8 grotes Flemish per £ sterling, and instructs it to take reimbursement upon Paris, which is done at 25½ shillings Lubisch per 3 francs, subject to a charge of ½ per cent for commission, &c.: what is thereby the proportional exchange as between London and Paris, contemplating an advantage of 2 months' interest, at the rate of 5 per cent per annum; and how much per cent better or worse would have been a direct draft upon Paris, at 25 francs 40 centimes per £ sterling?

Ans. 26 fcs. 31 cs. proportional exchange;
3$\frac{15}{32}$ per cent worse.

Being indebted to Paris, I remit thither a bill upon Hamburgh, drawn at 37 shillings 8 grotes Flemish per £ sterling, which is negotiated there at 182½ francs for 100 marks banco, subject to 1 per mil. brokerage: what is the proportional exchange thereby as between London and Paris, contemplating an advantage of 2½ months' interest, at the rate of 5 per cent per annum?

Ans. 26 fr. 1 c.

I draw upon Hamburgh at 37 shillings 3 grotes Flemish per £ sterling, and that place draws in payment upon Paris at 25¾ shillings for 3 francs, charging ¾ per cent for commission, &c.: what proportional exchange will that yield as between London and Paris; and how much per cent better or worse shall I have drawn thus than at 25 francs 25 centimes on Paris direct?

Ans. 26 fcs. 23 cs. proportional exchange;
3¾ per cent worse.

LONDON AND PARIS,

THROUGH

LISBON.

LONDON remits to Paris a bill upon Lisbon, at 52 pence sterling per milrea, which is there negotiated at 565 reas for 3 francs, subject to one per mil. brokerage: what proportional exchange will that give as between London and Paris?

EQUATION WITH CHARGES.

Sterling	£1.	=	240 pence.
Pence	52	=	1000 reas.
Reas	565	=	3 francs.
Francs, with brokerage.....	1001	=	1000 do. without brokerage.
How many francs?		=	£1. sterling.

Worked thus:—

$$\frac{240^{60} \times 1000^{200} \times 3 \times 1000}{52_{13} \times 565_{113} \times 1001} = \text{Fcs. cs. } 24\ 48$$

113
13
339
113
1469
1001
1469
146900
1470469

60
200
12000
3000 = 3 × 1000
)36000000(24·48
2940938
6590620
5881876
7087440
5881876
12055640
11763752
291888

By Logarithms.

Nat. No.	Log.
113 =	2·05308
13 =	1·11394
1001 =	3·00043
	6·16745

Nat. No.	Log.
60 =	1·77815
200 =	2·30103
3 =	·47712
1000 =	3
	7·55630
	6·16745
	1·38885 = Fcs. cs. 24 48 Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling..... *£1. = *240 pence.
Pence ..... 52 = *1000 reas.
Reas..... 565 = *3 francs.
How many francs? = £1. sterling.

Worked thus:—

$$\frac{\overset{60}{240} \times \overset{200}{1000} \times 3}{\underset{13}{52} \times \underset{113}{565}} = \text{Fcs. cs. } 24\ 50$$

2 for brokerage.

24 48 Ans.

113
13
339
113
1469

60
600 = 3 × 200
)36000(24·50
2938
6620
5876
7440
7345
950

By Logarithms.

Nat. No.	Log.
13 =	1·11394
113 =	2·05308
	3·16702

Nat. No.	Log.
60 =	1·77815
100 =	2·30103
3 =	·47712
	4·55630
	3·16702
	1·38928 = Fcs. cs. 24 50

2 brokerage.

24 48 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

52 *720000
565

Worked thus:—

36000
144000
720000 / 52 × 565 = 24 50
13 113

Fcs. cs.
2 for brokerage.
24 48 Ans.

113
13
339
113
1469)36000(24·50
2938
6620
5876
7440
7345
950

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.	
52 =	1·71600	*720000 =	5·85733	
565 =	2·75205		4·46805	
	4·46805		1·38928 =	Fcs. cs. 24 50
				2 brok^e
				24 48 Ans.

Paris being indebted to me, I draw upon Lisbon at 50½ pence sterling per milrea, desiring it to pay itself by drawing upon Paris, which it does at 550 reas for 3 francs: what proportional exchange will that yield as between London and Paris, the charges being ¾ per cent?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240	pence.
Pence.....	50½	=	1000	reas.
Reas, without charges..	100	=	100¾	do. with charges.
Reas.....	550	=	3	francs.
How many francs?		=	£1.	sterling.

Worked thus:—

$$\frac{240 \times 1000 \times 100{\cdot}75 \times 3}{50{\cdot}5 \times 100 \times 550} = \text{Fcs. cs. } 26\ 12 \text{ Ans.}$$

(4·03 over 100·75; 0 over 1000; 20·15 over 550; 10·1 over 50·5; 0 over 100; 55 over 550; 11 over 550)

240
4·03
720
9600
967·20
3
2901·60(26·11
2222
6796
6666
1300
1111
1890
1111
779
10·1
11
111·1

By Logarithms.

Nat. No.	Log.
10·1	= 1·00432
11	= 1·04139
	2·04571

Nat. No.	Log.
240	= 2·38021
4·03	= ·60531
3	= ·47712
	3·46264
	2·04571
	1·41693 = Fcs. cs. 26 12 Ans.

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	£1.*	=	240* pence.
Pence	50½	=	1000* reas.
Reas.....	550	=	3* francs.
How many francs?		=	£1.* sterling.

Worked thus:—

$$\frac{\overset{40}{\overset{200}{240}} \times 1000 \times 3}{\underset{10\cdot1}{50\cdot5} \times \underset{110}{550}} = \begin{array}{r} \text{Fcs. cs.} \\ 25\ 92 \\ 20 \text{ for } \frac{1}{4}\,\% \text{ charges.} \\ \hline 26\ 12 \text{ Ans.} \end{array}$$

10·1 240

110 120 = (3 × 40)

1111·0)28800·0(25·92

22220

65800

55550

102500

99990

25100

22220

2880

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
10·1 =	1·00432	240 =	2·38021
110 =	2·04139	40 =	1·60206
	3·04571	3 =	·47712
			4·45939
			3·04571
			1·41368
		Add for ¼ % cha*	327
			Fcs. cs.
			1·41695 = 26 12 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

$50\frac{1}{2}$ *720000
550

Worked thus: —

$$\frac{720000}{50{\cdot}5 \times 550} = \text{Fcs. cs. } 25\ 92$$
$$\underset{10{\cdot}1}{} \quad \underset{110}{}$$

20 for $\frac{3}{4}$ % Chas.

26 12 Ans.

10·1
110

1111·0)28800·0(25·92
22220

65800
55550

102500
99990

25100
22220

2880

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
$50\frac{1}{2}$ =	1·70329	*720000 =	5·85733
550 =	2·74036		4·44365
	4·44365		1·41368
		Add for $\frac{3}{4}$ % charges	327
			1·41695 = Fcs. cs. 26 12 Ans.

London remits to Paris a bill upon Lisbon, taken at 51 pence sterling per milrea, which is negotiated there at 552 reas per 3 francs, subject to 1 per mil. brokerage: what proportional exchange will that give as between London and Paris, including an advantage in interest of 2 months, at the rate of 5 per cent per annum; and how much per cent better or worse than a direct remittance, at 25 francs 60 centimes per £ sterling?

Ans. 25 fcs. 78 cs. proportional exchange; $\frac{11}{16}$ per cent better.

Paris being indebted to me, I draw upon Lisbon at $50\frac{3}{4}$ pence sterling per milrea, ordering reimbursement to be taken upon Paris, which is done at 535 reas for 3 francs: what proportional exchange will that establish as between London and Paris, contemplating $\frac{3}{4}$ per cent charges, but also an advantage of $2\frac{1}{2}$ months' interest, at the rate of 5 per cent per annum?

Ans. 26 fcs. 26 cs. proportional exchange.

Having to remit to Paris, I send thither a bill upon Lisbon, bought at $50\frac{3}{4}$ pence sterling per milrea, which is negotiated at 530 reas for 3 francs, chargeable with 1 per mil. brokerage: what is thereby the proportional exchange as between London and Paris, including an advantage of 2 months' interest, at the rate of 5 per cent per annum; and how much per cent better or worse should I have remitted by sending a bill direct upon Paris, at 25 francs 80 centimes per £ sterling?

Ans. 26 fcs. 98 cs. proportional exchange; $4\frac{3}{8}$ per cent better.

LONDON AND PARIS,

THROUGH

LEGHORN.

BEING indebted to Paris, I remit thither a bill upon Leghorn, bought at 47 pence sterling per pezza, which is placed there at 505 centimes per pezza, subject to 1 per mil. brokerage: what proportional exchange will that give as between London and Paris?

EQUATION WITH CHARGES.

Sterling.....	£1.	=	240 pence.
Pence.....	47	=	1 pezza.
Pezza.....	1	=	505 centimes.
Cents, with brokerage	1001	=	1000 do. without brok^{e}
Centimes	100	=	1 franc.
How many francs?		=	£1. sterling.

Worked thus:—

$$\frac{240 \times 505 \times 10^{10}}{47 \times 1001 \times 100^{0}} = \text{Fcs. cs. } 25\ 76 \text{ Ans.}$$

1001	505
47	$2 \times 120 = 240$
7007	1010
4004	120
47047	)1212000(25·76
	94094
	271060
	235235
	358250
	329329
	289210
	282282
	6928

By Logarithms.

Nat. No.	Log.
47 =	1·67210
1001 =	3·00043
	4·67253

Nat. No.	Log.
240 =	2·38021
505 =	2·70329
10 =	1
	6·08350
	4·67253
	1·41097 = Fcs. cs. 25 76 Ans.

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling..... *£1. = 240* pence.
Pence..... 47 = 1* pezza.
Pezza..... *1 = 505 centimes.
Centimes..... *100 = 1* franc.
How many francs? = *£1. sterling.

Worked thus:—

$$\frac{\overset{12}{240} \times \overset{101}{505}}{\underset{20}{47} \times \underset{0}{100}} = \text{Fcs. cs. } 25\ 78\tfrac{1}{2}$$

$2\frac{1}{2}$ for brokerage.

25 76 Ans.

```
  101
   12
  ---
47 )1212(25·78
   94
  ---
  272
  235
  ---
  370
  329
  ---
  410
  376
  ---
   34
```

By Logarithms.

Nat. No.	Log.
47 =	1·67210

Nat. No.	Log.
12 =	1·07918
101 =	2·00432
	3·08350
	1·67210
	1·41140 = Fcs. cs. 25 78½
	$2\frac{1}{2}$ Cha^{s}
	25 76 Ans.

EQUATION WITHOUT CHARGES,

With the Fixed Number.

47 : •2·4 :: 505

Worked thus : —

$$\frac{2{\cdot}4 \times 505}{47} = \begin{matrix}\text{Fcs. cs.}\\ 25\ 78\tfrac{1}{2}\end{matrix}$$

$2\frac{1}{2}$ brokerage.

25 76 Ans.

505
2·4
2020
1010
47)1212·0(25·78½
94
272
235
370
329
410
376
34

By Logarithms.

•2·4 = ·38021
505 = 2·70329
3·08350
47 = 1·67210
1·41140 = Fcs. cs. 25 78½

$2\frac{1}{2}$ brokerage.

25 76 Ans.

Paris being indebted to me, I draw upon Leghorn at 46½ pence sterling per pezza, which place takes its reimbursement upon Paris at 500 centimes per pezza: what proportional exchange will that yield as between London and Paris, the charges being ¾ per cent?

. . . . . .

EQUATION WITH CHARGES.

Sterling.....	£1.	= 240	pence.
Pence.....	46½	= 1	pezza.
Pezza, without charges	100	= 100¾	do. with charges.
Pezza.....	1	= 500	centimes.
Centimes	100	= 1	franc.
How many francs?		= £1.	sterling.

Worked thus: —

$$\frac{\overset{12}{240} \times \overset{20\cdot15}{100\cdot75} \times \overset{0}{\overset{5}{500}}}{\underset{9\cdot3}{46\cdot5} \times \underset{0}{100} \times \underset{20}{\underset{0}{100}}} = \overset{\text{Fcs.}}{26} \text{ Ans.}$$

20·15
12
9·3)241·80(26
186
558
558
0

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.	
9·3 =	·96848	12 =	1·07918	
		20·15 =	1·30428	
			2·38346	
			·96848	
			1·41498 =	26 Ans. Fcs.

Having to remit to Paris, I send thither a bill upon Leghorn, taken at 46¾ pence sterling per pezza, which is there negotiated at 499 centimes per pezza, with a deduction of 1 per mil. brokerage: what proportional exchange will that yield as between London and Paris, contemplating an advantage of 2½ months' interest, at the rate of 5 per cent per annum?

Ans. 25 fcs. 85 cs.

London draws upon Leghorn at 47¼ pence sterling per pezza, and orders Leghorn to draw upon Paris, which is done at 501 centimes per pezza, with ¾ per cent for charges: what will thereby be the proportional exchange as between London and Paris; and how much better or worse per cent than a direct draft from London upon Paris, at 25 francs 85 centimes per £ sterling?

Ans. 25 fcs. 64 cs. proportional exchange;
$\frac{13}{16}$ per cent better.

I remit from London to Paris a bill upon Leghorn, bought at 46¾ pence sterling per pezza, which is there negotiated at 503 centimes per pezza, subject to 1 per mil. brokerage: what proportional exchange will that give as between London and Paris, including an advantage in interest of 3 months, at the rate of 5 per cent per annum?

Ans. 26 fcs. 13 cs.

COMPOUND ARBITRATIONS.

LONDON AND AMSTERDAM,

THROUGH

MADRID, PARIS, AND HAMBURGH.

I REMIT to Amsterdam, by way of Madrid, at 35 pence sterling per dollar of exchange; thence to Paris at 15 francs 10 centimes per pistole of exchange; thence to Hamburgh at 182 francs for 100 marks banco, and thence to Amsterdam at 105½ rix-dollars Dutch for 100 rix-dollars Hamburgh: what will thereby be the arbitrated or proportional exchange as between London and Amsterdam, the charges attending this circuitous remittance amounting together to 1½ per cent?

EQUATION WITHOUT CHARGES,

These being deducted from the Result.

Sterling	£1.	=	240 pence.
Pence	35	=	272 mar^{s} d. p. or 1 dol^{r} of ex^{e}
Mar^{s} d. p. or 1 pist^{e} of ex^{e}	1088	=	15 10 francs and centimes.
Francs	182	=	100 marks banco.
Marks banco.....	3	=	1 rix-dollar Hamburgh.
Rix-dollars Hamburgh	100	=	105½ do. Dutch.
Do. Dutch	1	=	2 10 florins and stivers.
How many florins ?		=	£1. sterling.

Worked thus:—

$$\frac{240 \times 272 \times 15{\cdot}1 \times 100 \times 105{\cdot}5 \times 2{\cdot}5}{35 \times 1088 \times 182 \times 3 \times 100} = \begin{matrix}\text{Fl. st.}\\ 12\ 10\end{matrix}$$

$3\frac{3}{4} = 1\frac{1}{2}\ \frac{8}{0}$ cha^{s}

12 6½ Ans.

		272
		80
		21760
		15·1
		21760
		108800
		21760
		328576·0
		21·1
	1088	3285760
	7	3285760
	7616	6571520
	182	6932953·60
	15232	$5 \times 5 = 2{\cdot}5$
	60928	3466476·800
	7616	5
	1386112	)17332384·000(12·504
		1386112 20
		3471264 10·080
		2772224
		6990400
		6930560
		5984000
		5544448
		439552

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
7 =	·84510	80 =	1·90309
1088 =	3·03663	272 =	2·43457
182 =	2·26007	15·1 =	1·17898
	6·14180	21·1 =	1·32428
		2·5 =	·39794
			7·23886
			6·14180
			1·09706
	Add for 1½ $\frac{8}{0}$ cha^{s}		656
			1·10362 = Fl. st. 12 6½ Ans.

LONDON AND HAMBURGH,

THROUGH

LISBON, PARIS, AND AMSTERDAM.

HAVING money owing to me at Hamburgh, I draw upon Lisbon at 50½ pence sterling per milrea; thence upon Paris at 565 reas for 3 francs; thence upon Amsterdam at 57½ grotes Flemish for 3 francs; and thence upon Hamburgh at 34½ stivers for 2 marks banco: what proportional exchange will that yield as between London and Hamburgh, the charges attending this circuitous mode of drawing amounting together to 2 per cent?

EQUATION WITHOUT CHARGES,

These being added to the Result.

Sterling.....	£1.	=	240	pence.
Pence.....	50½	=	1000	reas.
Reas.....	565	=	3	francs.
Francs	3	=	57½	grotes Flemish.
Grotes Flemish.....	12	=	6	stivers.
Stivers	34½	=	2	marks.
Marks.....	3	=	8	shil. Flemish.
How many shil. Flem.?		=	£1.	sterling.

Worked thus: —

$$\frac{\overset{4}{20} \times \overset{40}{200} \times \overset{0}{3} \times 57{\cdot}5 \times \overset{2}{6} \times 2 \times 8}{\underset{10{\cdot}1}{50{\cdot}5} \times \underset{113}{565} \times \underset{0}{3} \times \underset{0}{12} \times \underset{6{\cdot}9}{34{\cdot}5} \times \underset{0}{3}} = \begin{matrix} \text{S. Fl. g.} \\ 37\ 4\tfrac{1}{2} \\ 9 \text{ add for } 2\ \tfrac{0}{0} \text{ Chas} \\ \hline 38\ 1\tfrac{1}{2} \text{ Ans.} \end{matrix}$$

		160 = 4 × 40
	10·1	57·5
	113	
	303	1120
	1111	800
	1141·3	9200·0
	6·9	4 = 2 × 2
	102717	36800·0
	68478	8
	7874·97	)294400·00(37·38
		2362491 12
		5815090 4·56
		5512479
		3026110
		2362491
		6636190
		6299976
		336214

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
10·1 =	1·00432	4 × 40 = 160	= 2·20412
113 =	2·05308	57·5	= 1·75967
6·9 =	·83885	2 × 2 × 8 = 32	= 1·50515
	3·89625		5·46894
			3·89625
			1·57269
		Add for ½ % charges	877
			S. Fl. g.
			1·58146 = 38 1½ Ans.

LONDON AND PARIS,

THROUGH

LEGHORN, LISBON, HAMBURGH, AND AMSTERDAM.

HAVING to pay money to Paris, I remit to Leghorn at 47 pence sterling per pezza; thence to Lisbon at 786 reas per pezza; thence to Hamburgh at 37 grotes Flemish per crusade of 400 reas; thence to Amsterdam at 105½ rix-dollars Dutch for 100 rix-dollars Hamburgh banco; and thence to Paris at 56½ grotes Flemish for 3 francs: what proportional exchange will be thereby established as between London and Paris, the charges on the circuitous remittance amounting together to 2¼ per cent?

EQUATION WITH CHARGES.

Sterling	£1.	=	240	pence.
Pence	47	=	1	pezza.
Pezza	1	=	786	reas.
Reas	400	=	37	grotes Flem.
Grotes Flem.	96	=	1	rix-dollar Hamburgh.
Rix-dollars Hamburgh	100	=	105½	do. Dutch.
Do. Dutch	1	=	100	grotes Flemish.
Grotes Flemish	56½	=	3	francs.
Francs, with charges	102¼	=	100	do. without charges.
How many francs?		=	£1.	sterling.

Worked thus: —

$$\frac{\overset{0}{\underset{12}{\underset{60}{240}}} \times 786 \times \overset{}{37} \times \overset{21\cdot1}{105\cdot5} \times \overset{0}{100} \times 3 \times \overset{0}{100}}{47 \times \underset{0}{\overset{4}{400}} \times \overset{8}{96} \times \overset{0}{100} \times 56\cdot5 \times \underset{4\cdot09}{\overset{20\cdot45}{102\cdot25}}} = \text{Fcs. cs. } 21\ 19 \text{ Ans.}$$

47		
8	786	
376	37	
56·5	5502	
1880	2358	
2256	29082	
1880	21·1	
21244·0	319902	
4·09	58164	
1911960	61363·02	
8497600	3	
86887·960	)184089·0600(21·18	
	173775920	
	103131400	
	86887960	
	162434400	
	86887960	
	755464400	
	695103680	
	60360720	

By Logarithms.

Nat. No.		Log.	Nat. No.		Log.
47	=	1·67210	786	=	2·89542
8	=	·90309	37	=	1·56820
56·5	=	1·75205	21·1	=	1·32428
4·09	=	·61172	3	=	·47712
		4·93896			6·26502
					4·93896
					1·32606 = Fcs. cs. 21 19

EXAMPLES FOR PRACTICE.

LONDON remits to Amsterdam by way of Lisbon, at 48 pence sterling per milrea; thence to Paris at 595 reas for 3 francs; thence to Hamburgh at 184½ francs for 100 marks banco; and thence to Amsterdam at 120 marks banco for 107¼ florins: what arbitrated or proportional exchange will that produce as between London and Amsterdam, the charges on the transaction amounting together to 1⅝ per cent?

Ans. 12 florins.

London remits to Amsterdam by way of Hamburgh, at 13 marks 11 shillings banco per £ sterling; thence to Leghorn at 87½ grotes Flemish banco per pezza; thence to Amsterdam at 1 pezza for 98½ grotes Flemish banco: what will thereby be the arbitrated or proportional exchange as between London and Amsterdam, allowing 1¼ per cent for charges?

Ans. 12 fl. 3 st. 6 p.

Hamburgh remits to Amsterdam by way of Leghorn, at 87½ grotes Flemish for 1 pezza; thence to London at 49½ pence sterling per pezza; and thence to Amsterdam at 12 florins 2 stivers per £ sterling: what exchange will that yield as between Hamburgh and Amsterdam, the charges on such circuitous remittance being 1½ per cent?

Ans. 108 florins.

Hamburgh remits to London by way of Madrid, at 87 grotes Flemish for 1 ducat of exchange; thence to Paris at 15 francs per pistole of exchange; and thence to London at 25 francs 50 cents per £ sterling: what exchange will that yield as between Hamburgh and London, the charges being $1\frac{1}{2}$ per cent?

Ans. 13 b. mcs. $9\frac{1}{2}$ sh.

Amsterdam remits to London by way of Lisbon, at 38 florins per 40 crusados of 400 reas; thence to Paris at 595 reas for 3 francs; thence to Vienna at $251\frac{3}{4}$ francs for 100 florins in 20 X; thence to Hamburgh at $145\frac{1}{2}$ rix-dollars for 300 marks banco; and thence to London at 13 marks 8 shillings banco per £ sterling; what will be the course of exchange thereby established between Amsterdam and London, the charges being $1\frac{5}{8}$ per cent?

Ans. 11 fl. 17 st.

Amsterdam remits to London by way of Frankfort, at 36 florins for 20 rix-dollars; thence to Paris at 78 rix-dollars for 300 francs; thence to Hamburgh at $184\frac{1}{2}$ francs for 100 marks banco; thence to London at 13 marks 8 shillings banco per £ sterling: what exchange will that yield as between Amsterdam and London, deducting $1\frac{5}{8}$ per cent for charges?

Ans. 11 fl. 17 st.

Frankfort remits to Hamburgh by way of Amsterdam, at 138 rix-dollars for 100 rix-dollars Dutch; thence to Paris at 57 florins for 120 francs; thence to London at 25 francs 25 cents per £ sterling; thence to Hamburgh at 13 marks 10 shillings banco per

£ sterling: what exchange will that give as between Frankfort and Hamburgh, deducting $1\frac{1}{2}$ per cent for charges?

Ans. 148 rix-dollars Frankfort.

Lisbon remits to Amsterdam by way of Paris, at 590 reas for 3 francs; thence to Hamburgh at $183\frac{3}{4}$ francs for 100 marks banco; thence to London at 13 marks $7\frac{1}{2}$ shillings banco per £ sterling; thence to Amsterdam at 12 florins 1 stiver per £ sterling: what exchange will that yield as between Lisbon and Amsterdam, the charges incurred by such circuitous remittance being $1\frac{1}{4}$ per cent?

Ans. $39\frac{1}{8}$ florins.

Madrid remits to London by way of Lisbon, at 2640 reas for 1 pistole of exchange; thence to Hamburgh at 35 grotes Flemish for 1 crusado of 400 reas; thence to Paris at 188 francs for 100 marks banco; thence to London at 25 francs 50 cents per £ sterling: what exchange will that establish between Madrid and London, the charges being $1\frac{3}{8}$ per cent?

Ans. $31\frac{1}{2}$d. per dollar of exchange.

London draws upon Paris by way of Lisbon, at $48\frac{3}{4}$ pence per milrea; thence upon Hamburgh at $35\frac{1}{2}$ grotes Flemish per crusado of 400 reas; thence upon Paris at $188\frac{1}{4}$ francs for 100 marks banco: what exchange will result therefrom as between London and Paris, the charges on the circuitous operation being $2\frac{3}{4}$ per cent, and the advantage in interest being 3 months, at the rate of 5 per cent per ann.?

Ans. 26 fcs. 10 cs.

Paris draws upon Hamburgh by way of Amsterdam, at 57⅜ grotes Flemish banco for 3 francs; thence upon London at 11 florins 90 cents per £ sterling; thence upon Hamburgh at 13 marks 9 shillings banco per £ sterling: what exchange will that give as between Paris and Hamburgh, the charges being 2⅛ per cent, and the advantage in interest 2½ months, at the rate of 5 per cent per annum?

Ans. 185½ fcs.

Amsterdam draws upon Lisbon by way of Madrid, at 97½ florins for 40 ducats of exchange; thence upon Hamburgh at 94¾ grotes Flemish for 1 ducat of exchange; thence upon Paris at 187¾ francs for 100 marks banco; thence upon Lisbon at 3 francs for 600 reas: what exchange will that yield between Amsterdam and Lisbon, the charges being 1⅞ per cent, and the gain in interest 2½ months, at the rate of 5 per cent per annum?

Ans. 35⅜ fl. for 40 crus.

ON

CALCULATIONS OF OPERATIONS

IN

SPECIE AND BULLION.

In treating of this branch of my Work, I shall not enter into any historical account or particular examination of the nature of the precious metals, but confine myself to a few brief prefatory remarks, which appear to me indispensable to the practical illustration of the subject.

Specie is a term used to denote all kinds of coins.

Bullion, when used in its most general sense, signifies not only gold and silver unwrought, or in mass, when in an unalloyed or virgin state, either in ore or dust, but also when mixed, either as coins or otherwise, with any proportion of alloy;—in its particular sense, however, it is more usually applied to denote the precious metals in ingots, bars, ore, or dust.

Specie or *Coins* are pieces of metal, generally, if not always, of gold, silver, or copper, bearing such impressions, and representing such value, as may be determined by the authority of the states where they are issued, and to which authority the privilege of coin-

ing is exclusively confined,—it being in all countries criminal for individuals to coin money without it.

Coins have a local or current value, and a commercial value or price.

The local or current value of coins is that which they bear in the places where they circulate, originally determined by the authority which issues them; but sometimes varying from different causes, as the issue of paper money, &c.

The commercial value or price of coins is that which they are worth in reference to places where they do not circulate, nor are current by authority.

As gold and silver are, when in a pure state, too ductile or soft to be coined, it is necessary for that purpose to mix them with harder metals: this mixture is called *alloy;* and the proportion which the precious bear to the inferior metals is termed the degree of fineness or *assay.*

The degrees of fineness are various in different countries, and differ even in the same countries at different periods.

The degree of fineness determined on by the government of a country is termed the *standard* of that country.

The weight used in Great Britain for appreciating the value of coins and metals is the pound troy, of which the divisions are as follow:—

1 pound..... = 12 ounces (oz.)
1 ounce..... = 20 pennyweights (dwts.)
1 pennyweight.. = 24 grains (grs.)

The standard fineness of gold is determined by reference to a weight of 24 carats, each of which is divided into 4 grains; that of silver by reference to

the pound troy, as above described. Thus, a pound of pure or virgin gold is said to contain 24 carats of pure gold; and a pound of pure or virgin silver, 12 ounces of pure silver.

The standard degree of fineness for coins, as determined by the government of Great Britain is, for gold coins, 22 carats of pure gold to 1 carat of fine silver and 1 carat of fine copper; that of silver, 11 ounces 2 pennyweights of pure silver to 18 pennyweights of pure copper; — so that a pound of standard gold contains only $\frac{22}{24}$, or $\frac{11}{12}$ of a pound of pure gold; and the pound of standard silver only $\frac{222}{240}$, or $\frac{37}{40}$ of a pound of pure silver.

The commercial or market price of gold or silver in England is always to be considered as for the standard degree of fineness; and when these metals are finer or coarser than standard, the price is not altered, but the weight on which payment is made is either increased or diminished, and such pay-weight is found by the following rule of proportion: —

As the standard fineness is to the weight of the metal, so is its actual fineness to the pay-weight.

EXAMPLES. — What is the pay-weight of 100 ounces of gold, 1 carat better than standard?

	Car.	Oz.		Car.	Oz. dwt. gr.	
As	22	: 100	: :	23	: 104 10 22	pay-weight.

What is the pay-weight of 120 ounces of silver 10 dwts. worse than standard?

	Oz. dwts.	Oz.		Oz. dwts.	Oz. dwts. gr.	
As	11 2	: 120	: :	10 12	: 114 11 21½	pay-weight.

Or, the pay-weight may be found from the Tables

annexed to this Volume for standarding gold and silver by the following Rules.

FIRST.—*For Standarding of Gold.*

Reduce the difference between the standard and the actual degree of fineness into quarter grains, by which then multiply the weight of the gold, and take the product out of the Table, which will give the difference between the actual weight and the pay-weight; if the quality be better than standard, the difference of weight must be added to, and in a contrary case subtracted from, the actual weight.

EXAMPLE.—What is the pay-weight of 100 ounces of gold, 1 carat better than standard?

Better 1 carat
4
—
4 grains
4
—
16 quarter grains.

Oz.
100 × 16 = 1600

			oz.	dwt.	gr.
Take 1000	out of the	Table =	2	16	20
500	do.	do. =	1	8	10
and 100	do.	do. =	0	5	16
1600			4	10	22
	Add actual weight		100	0	0
	Pay-weight		104	10	22

SECOND.—*For Standarding of Silver.*

Reduce the difference between the standard and the actual degree of fineness into half pennyweights, by which multiply the weight of the silver, and take the product out of the Table for standarding silver, which will give the difference of weight, with which proceed as directed in the Rule for standarding gold.

EXAMPLE.—What is the pay-weight of 120 ounces of silver, that is 10 dwts. worse than standard?

Worse 10 dwts.
2
—
20 half pennyweights.

Oz.
120 × 20 = 2400

	Oz.	dwt.	gr.
Take 2000 out of the table =	4	10	2
400 do. do =		18	
	5	8	2 +

	Oz.	dwt.	gr.
From actual weight	120	0	0
Take difference ..	5	8	2 +
Pay-weight ..	114	11	21 +

In some countries, the government issue coins at a current value above their intrinsic or standard value, in which case the currency of such state is said to be depreciated; in other countries, coins are at only their intrinsic or standard value.

The difference between the value at which coins are issued by a state and their standard value is called *seignorage*, which, in some instances, is no more than the mere expense of coining; and in some states even

this expense is not levied, but borne by the government; and persons taking metal to be coined receive back the same value standard, but more or less in weight, according as the metal delivered was better or worse than standard: thus, if they deliver 100 ounces of gold, better than standard 1 carat, they will receive in standard coin 104 oz. 10 dwt. 22 gr.

Exchanges are necessarily very intimately connected with operations in specie and bullion, because the rates of the former are regulated by the results, or what would be the results, of the latter; for persons having to remit to a foreign country will not buy bills, if, by sending specie or bullion, they are likely to make a more advantageous remittance: the result, however, of such remittances cannot be immediately determined when undertaken, as that must depend upon the price at which such specie or bullion may be sold, and which obviously cannot be ascertained till after their arrival at the place to which they are remitted; whilst, when making a remittance in bills of exchange, the rate of exchange, or the result, save and except the contingency of risk attending the responsibility of the several parties to the bill, is determined at the moment of negotiation, and, as far as that is concerned, not subject to any subsequent fluctuation.

The fluctuations in the prices of specie and bullion, and the uncertainty of what they may be, give rise to speculative operations in them; and I now proceed to consider the mode in which they are to be calculated.

In calculating such operations, it is necessary to consider the following points: —

a. The local fineness, or assay and weight, of the

specie or bullion at the place where bought, and the relation which these bear to the standard fineness and weights established at the place to which they are sent for sale.

b. When gold dust, or the precious metals in ore, are bought, the loss of weight or off-fall in refining, called in some places breakage.

c. The price paid, and the terms of purchase.

d. The course of exchange current at the time of purchase, between the place at which they are purchased and that to which they are to be remitted; direct when without the intervention of other places, —and proportional, or arbitrated, when otherwise.

e. The price at which the specie or bullion is sold, and the terms at the place to which they are remitted.

f. The expenses attending the purchase, transit, and sale.

The assays and weights of the several coins of the various parts of the world will be found under the heads of the respective places; but the following Table and remarks may tend further to facilitate calculations, as they exhibit the average results of many operations.

804	ounces troy	=	25 kiliogrammes of France.
451	do.	=	60 marcs of Hamburgh.
633	do.	=	80 do. of Holland.
369	do.	=	50 do. of Portugal.
37	do.	=	5 do. of Spain.

1000 Spanish doublons..	=	866½ ounces troy.
or	=	27 kiliogrammes of France.
1000 Spanish dollars ..	=	115 marcs of Hamburgh.
	=	109½ do. of Holland.
	=	117¼ do. of Portugal.
	=	117 do. of Spain.

1000 Joanese = 460 ounces troy.
= $14\frac{5}{16}$ kiliogrammes of France.
= $61\frac{1}{6}$ marcs of Hamburgh.
= $58\frac{1}{8}$ do. of Holland.
= $62\frac{1}{3}$ do. of Portugal.
= $62\frac{1}{6}$ do. of Spain.

12 ounces troy, standard gold = 11 ounces troy fine gold.
40 ..... silver = 37 ..... silver.
47 ..... gold = 44 .....ducat gold.

The chief places with which this country operates in specie and bullion are France, Holland, Hamburgh, Spain and its late colonies in South America, Portugal, and Brazil; and I shall now give the weights by which the precious metals are bought and sold, and their assay regulated, in those places.

FRANCE.

ALL things are now sold in France by the same kind of weight, of which the gramme is considered the unit; and the following are the several denominations and proportions of the subdivisions, viz.: —

1 myriagramme = 10 kiliogrammes.
1 kiliogramme = 10 hectogrammes.
1 hectogramme = 10 decagrammes.
1 decagramme = 10 grammes.

And the gramme is again subdivided into 10 decigrammes, 100 centigrammes, or 1000 milligrammes.

100 kiliogrammes = 427·6002 marks of Cologne = 267·994 lbs. troy.

In the present mode of assaying, unity, or a whole, is considered as divided into decimes, centimes, or millimes; or in 10, 100, or 1000 parts, viz. 10 decimes, or 100 centimes, or 1000 millimes,—expressed thus, $\frac{10}{10}$, or $\frac{100}{100}$, or $\frac{1000}{1000}$; and the degree of fineness of the precious metals is indicated by the number of such parts of fine metal which a given weight contains: thus, if 1 kiliogramme contained 9 parts fine or pure metal, and 1 part of alloy or dross, the degree of fineness would be expressed thus, $\frac{900}{1000}$. Gold and silver in bars are sold at prices fixed for the different degrees, with an agio thereon fluctuating according to the state of the market. The national coins are sold at their current value, also with a variable agio.

Foreign coins are sold at a variable price each.

The following were the prices current on the 20th March, 1929 :—

		Fcs. . cs.		AGIO. Fcs. cs.
Gold in bars @ $\frac{1}{1000}$ fine, the kilog^{me}		3434 44	..	2 25 ₱ 1000
$\frac{9}{10}$	do.	3091 0		
20 and 40 franc pieces				2 75 to 3 fcs. do.
Dutch ducats				81 65 each.
Silver in bars @ $\frac{1}{1000}$ fine the kilog^{me}		219 89	..	5 25 ₱ 1000
$\frac{1}{1000}$	do...	197 25		
Spanish dollars $\frac{835}{1000}$	do. ..	196 12	..	5 50

HOLLAND.

Gold and silver are weighed by the mark troy, divided as follows:—

1 mark.... = 8 ounces.
1 ounce .. = 20 engels.
1 engel.... = 4 vierlings.
1 vierling.. = 2 troisken.
1 troisken = 2 deursken.
1 deursken = 2 as.

80 marks = 633 ounces troy English.

In assaying gold, the mark fine, or pure gold, is reckoned at 24 carats, of 12 grains each.

In assaying silver, the mark fine, or pure silver, is reckoned at 12 pfennings, of 24 grains each, and these grains of 24 parts each.

Gold and silver, in bars, are sold according to their degree of fineness, in proportion to a fixed price for the Netherland pound of pure gold or silver, with a fluctuating agio thereon.

Coins are sold at a variable price each.

The quotations were, on the 22d Feb. 1828,

	Fl.	cs.	Agio.
Gold in bars, fine, per Netherland ℔ ..	1442	60....	13½ ℘ cent.
Silver do. ..... do.....	104	0	..none.
	m.	o. l.	
New ducats	5	55	each.
Old ducats	–	–	..
Louis d'ors	11	15	..
French 20 franc pieces	9	55	..
English sovereigns	11	95	..
French crowns	2	73	..
Spanish dollars	2	51	..

HAMBURGH.

GOLD and silver are sold by the mark of Cologne, divided as follows:—

1 mark .. = 8 ounces.
1 ounce .. = 2 loths.
1 loth.... = 4 quents.
1 quent .. = 4 pfennings.
1 pfenning = 2 hellers.

60 marks = 451 ounces troy English.

In assaying, the mark fine, or pure gold, is reckoned at 24 carats, of 12 grains each.

In assaying silver, the mark of fine, or pure silver, is reckoned at 16 loths, of 18 grains each.

Gold and silver, in bars, are sold at a variable price, according to their degree of fineness, in proportion to the mark of fine or pure metal.

Coins are sometimes sold at a variable price per mark fine; and sometimes at a variable price each.

The following were the quotations on the 1st March, 1828:—

New ducats (no price), each in banco.
Louis and Fred. d'or, 11 marks 2¼ shillings do.
New ducats (no price), each in current money.
Louis and Fred. d'or, 13 marks 14¾ shillings do.
Span. dollars, 27 marks 11 shillings per mark fine, in banco.
Fine silver, 27 marks 10½ shillings do.

SPAIN.

GOLD and silver are sold by the mark of Castile, divided as follows:—

1 mark.... = 8 oncas.
1 onca .. = 8 ochavos.
1 ochava .. = 2 adarmes.
1 adarme .. = 3 tornines.

1 mark = also 4608 granos.

5 marks of Castile = 37 ounces troy English.

In assaying gold, the mark fine, or pure gold, is reckoned at 24 carats, of 4 grains each.

In assaying silver, the mark of fine, or pure silver, is reckoned at 12 dineros, of 24 grains each.

Note.—I have not been able to obtain any quotations of gold and silver from Spain, although I applied to the principal Spanish houses for that purpose.

PORTUGAL AND BRAZIL.

GOLD and silver are weighed by the marco, which is divided as follows:—

1 marco .. = 8 oncas.
1 onca .. = 8 outavas.
1 outava = 3 escrupulos.

100 marcos = 98·124 marks of Cologne.
50 do. = 369 ounces troy English.

The price at which the precious metals are sold is generally so much per outava; and coins at a certain number of reas each.

In assaying gold, the mark is divided into 24 carats or quilates, of 4 grains each.

In assaying silver, the mark is divided into 12 dinheiros, of 24 grains each.

The quotations from LISBON were, on the 22d March, 1828:—

	Reas.
Gold per outava....	1905
Ports or Joanese....	7680 each.
Spanish dollars	915 ..

Payable, half in the silver currency of the country, and half in bank paper, which was at 22 per cent discount.

The quotations from RIO DE JANEIRO were on the 21st January, 1828:—

	Reas.	
Gold in bars.....	105 to 108	per cent premium.
Ports or Joanese, of 6400 reas each	103	
Brazil pieces of 4000 do...	77	
Silver currency of the country....	50	
Copper do.....	15	
Spanish dollars.....	1550 reas each.	

Payable in bank paper.

The exchange upon London at the same time, 31½ d. stg. per 1000 reas.

The various cases of calculations of operations in specie and bullion that occur, may be referred to the following general heads: —

First.—To ascertain the cost of any given quantity, usually an ounce, of the precious metals.

Secondly.—To determine the rate of exchange, which a remittance of specie or bullion would establish between the place where bought and that to which it is sent for sale. This calculation will be more simple or complex according as the payment for the purchase, or the remittance for the sale, of the specie or bullion, be made direct between the two places, or through the intervention of one or more other places.

Thirdly.—To calculate the rate per cent of profit or loss attending such operation.

The most convenient way for working these several calculations is by the rule of equation.

CASE I.—*To ascertain the Cost of any given quantity, say one Ounce, of Specie or Bullion.*

RULE. — Let the following be the terms of the equation, arranged according to the order prescribed in the former part of the Work, when teaching how to state an equation.

a. The cost price of the specie or bullion in the money of the country where bought.

b. The premium or agio thereon, if any.

c. The relative weights between the places of purchase and sale.

d. The assay, or degree of fineness, of the specie or bullion bought, when different from the standard at the place of sale.

e. The course of exchange between the two places, as also between those and any other places employed in the transaction, and the charges thereat.

f. The charges attending the purchase, transit, and sale, of the specie or bullion.

g. The profit or loss in interest, if any, for the time between the payment for the purchase of the specie or bullion, and the receipt of the proceeds of the sale.

EXAMPLE.—My correspondent at Rio de Janeiro buys for my account 1000 ports or Joanese, of 6400 reas each, on which he pays a premium of 50 per cent, and draws upon me in London for the amount, inclusive of 2 per cent charges for commission, packages, shipping, &c., at 43 pence sterling per milrea,—the freight, insurance, and charges of sale in London, will amount to $3\frac{1}{2}$ per cent upon the selling price: required the cost price of an ounce?

STATING OF THE EQUATION.

Ounces.....	460°	=	1000° Joanese.
Joanese.....	1°	=	6400° reas.
Reas, without premium	100°	=	150 do. with premium.
Reas, without charges..	150	=	153 do. with charges.†
Reas.....	1000°	=	43 pence.
Pence.....	12°	=	1° shilling.
Shillings, without cha^{s}	100°	=	103½ shil. with charges.
How many shillings?		=	1° ounce.

Worked thus: —

$$\frac{1000 \times 6400 \times 150 \times 153 \times 43 \times 103{\cdot}5}{460 \times 100 \times 150 \times 1000 \times 12 \times 100} = 78\ 11\ \tfrac{9}{10}\ \text{Oz.}$$

(s. d.)

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
460 =	2·66276	64 =	1·80618
12 × 20 = 240 =	2·38021	153 =	2·18469
	5·04297	43 =	1·63347
		20·7 =	1·31597
			6·94031
			5·04297
			1·89734 = 78 11/16 s.

† N.B. Although the charges on purchase are only 2 %, yet, as they are made on the price inclusive of premium, viz. of 50 %, they become equal to 3 %; and as such I have assumed them.

STATING OF THE EQUATION,

With the Fixed Number.

·8625	150
150	153
	43
	$103\frac{1}{2}$

Worked thus:—

$$\frac{150 \times 153 \times 43 \times 103{\cdot}5}{8625 \times 150} = \overset{s.}{78}\ \overset{d.}{11}\ \tfrac{9}{10}\ \text{Oz.}$$

By Logarithms.

Nat. No.	Log.
153	= 2·18469
43	= 1·63347
103·5	= 2·01494
	5·83310
·8625	= 2·89736
	2·93574 = 78 11 (s. d.)

STATING OF THE EQUATION,

Without the Charges, these being added to the Result.

Ounces.....	460	=	1000 Joanese.
Joanese.....	1	=	6400 reas.
Reas, without prem..	100	=	150 do. with premium.
Reas.....	1000	=	43 pence.
Pence.....	12	=	1 shilling.
How many shil.?		=	1 oz.

Worked thus:—

$$\frac{1000 \times 6400 \times 150 \times 43}{460 \times 100 \times 1000 \times 12} = \begin{array}{rr} s. & d. \\ 74 & 9\frac{1}{2} \\ 4 & 1\frac{1}{2} = 5\frac{1}{2}\ \frac{0}{0}\ \text{charges.} \\ \hline 78 & 11\ \text{Oz.} \end{array}$$

(4, 10 / 0, 16, 50 / 115, 0, 0, 3 / 23, 0)

By Logarithms.

Nat. No.		Log.
4	=	0·60206
10	=	1
43	=	1·63347
		3·23553
23	=	1·36173
		1·87380
Add for $5\frac{1}{2}\ \frac{0}{0}$ charges..		2457
		1·89837

$= 78\ s.\ 11\ d.$ Oz.

STATING OF THE EQUATION,

Without the Charges, with the Fixed Number.

$$*86\tfrac{1}{4} \quad 150$$
$$43$$

Worked thus:—

$$\frac{150 \times 43}{86{\cdot}25} = \begin{array}{rr} s. & d. \\ 74 & 9\tfrac{1}{2} \\ 4 & 1\tfrac{1}{2} = 5\tfrac{1}{2} \text{ charges.} \end{array}$$

78 11 ℔ Oz.

By Logarithms.

Nat. No.	Log.
150 =	2·17609
43 =	1·63347
	3·80956
*86¼ =	1·93576
	1·87380
Add for 5½ % charges	2457
	1·89837 = 78 s. 11½ d. ℔ Oz.

EXPLANATION.—In the foregoing example it will be observed, that the items of the rule *d* and *g* are omitted in the stating of the equation; the item *d*, or difference in the assay, because Joanese are of the same fineness as British standard gold, and the item *g*, or consideration of interest, because I have assumed, in this case, that the bill would become due about the time that the proceeds of the gold would be received.

As the required answer is the equivalent or price for an ounce, 1 ounce must be the last consequent in

the stating of the equation, and therefore the first antecedent must be in ounces; this I make as the equivalent weight of 1000 Joanese, viz. 460 ounces, which is very nearly the weight such a quantity would average, and in preference to any other number of Joanese, as more convenient; because I know the exchange to be a certain number of pence for 1000 reas, which latter term having to come in the opposite column to that where the 1000 Joanese will be placed, they will cancel each other, and reduce the working. The remaining part of the working proceeds upon the general rule, and requires no comment.

With regard to the use of the fixed number, it must be obvious, that the terms marked * will occur in every stating of an equation of a similar transaction between Rio de Janeiro and London; and that, consequently, they can be reduced to the fixed number used.

The correctness of this calculation will be clearly shewn by contrasting an invoice of the purchase of the gold with an account of the sale thereof, both upon the terms assumed in the foregoing example : —

Invoice of 1000 *Joanese bought at Rio de Janeiro, and remitted for Sale to London.*

	Reas.
1000 Joanese @ 6400 reas each	6400·000
Premium, 50 ℔ cent.....	3200·000
	9600·000
Commission, boxes, shipping, &c. 2 ℔ cent.....	192·000
	9792·000
Drawn for at 43 pence ℔ milrea	£1754. 8*s.*

Account Sale of 1000 *Joanese received from Rio de Janeiro, and sold in London.*

1000 Joanese, wt. 460 oz. @ 78*s.* 11*d.* ℔ oz. ..	£1815	1	8
Commission, freight, land-carriage, brokerage, and petty expenses, 3½ ℔ cent	63	10	6
	£1751	11	2

N. B.—The difference between the two above accounts of £2. 16*s.* 10*d.* arises from the cost of the ounce being a fraction above 78*s.* 11*d.*; but the result is sufficiently near to shew the principle of the equation.

CASE II.*—*To determine the Course of Exchange which a Remittance of Specie or Bullion would establish between the Place whence sent and that to which it is remitted for Sale.*

RULE.—Let the following be the terms of the equation:—

a. The cash price of the coin or bullion, in the money of the country where bought.

b. The premium thereon, if any.

c. The relative weights between the two places.

d. The assay of the specie or bullion, if of a different degree of fineness to the standard of the place to which it is sent for sale.

e. The charges attending the purchase, transit, and sale.

f. The price at which sold.

g. The profit or loss of interest, if any, for the difference of time between the period when a remittance in a bill of exchange would have fallen due, and that when the proceeds of the specie or bullion would have been received.

* By this case is found the *Commercial Par* (see page 60); and as this is the only par of consequence in exchange operations, (although much importance has been sometimes, but I think without reason, attached to the par of coins, or intrinsic par)—I have not considered it necessary to give any further rules for the calculation of other pars, which, however, the student who has thus far accompanied me will have no difficulty in forming himself.

EXAMPLE.—A house at Buenos Ayres remits to England 5000 Spanish dollars, bought at a premium of 5 per cent, and subject to 5 per cent charges for export duty, commission, packages, and shipping expenses; these dollars are sold in London at 4*s.* 11*d.* per oz., chargeable with 4 per cent for freight, commission, and other expenses: what exchange will that yield in pence sterling per dollar as between London and Buenos Ayres?

STATING OF THE EQUATION.

Dollars with p^{m} and cha^{s}	110¼	=	*100 dollars without p^{m} and cha^{s}
Dollars	1000*	=	*866 ounces.
Ounce	1*	=	59 pence (or 4*s.* 11*d.*)
Pence with charges	104	=	*100 pence without charges.
How many pence?		=	*1 dollar.

Worked thus:—

$$\frac{\overset{0}{100} \times 866 \times \overset{0}{59} \times \overset{2}{100}}{\underset{22{\cdot}025}{110{\cdot}25} \times \underset{0}{1000} \times \underset{52}{104}} = 44\tfrac{9}{16}\ d.\ \text{Ans.}$$

By Logarithms.

Nat. No.	Log.
110¼ =	2·04238
1000. =	3
104 =	2·01703
	7·05941

Nat. No.	Log.
100 =	2
866 =	2·93752
59 =	1·77085
100 =	2
	8·70837
	7·05941
	1·64896 = 44 9/16 *d.* Ans.

STATING OF THE EQUATION,

With the Fixed Number.

$110\frac{1}{4}$	·8660
104	59

Worked thus:—

$$\frac{8660 \times 59}{110\frac{1}{4} \times 104} = 44\frac{5}{16}\,d. \text{ Ans.}$$

By Logarithms.

Nat. No.	Log.
$110\frac{1}{4}$ =	2·04238
104 =	2·01703
	4·05941

Nat. No.	Log.
·8660 =	3·93752
59 =	1·77085
	5·70837
	4·05941
	1·64896 = $44\frac{5}{16}\,d.$ Ans.

EXPLANATION.—In this example, the dollars with the premium and charges are properly put in the column of antecedents, because they render the rate of exchange less favourable, and must, therefore, form part of the divisor; and they amount to $110\frac{1}{4}$, not 110, for every dollar, because the charges are reckoned on the dollars with premium, viz. 105, and consequently amount to $5\frac{1}{4}$, which, added to the premium, make $110\frac{1}{4}$.

CASE III.—*To calculate the Rate per Cent of Profit or Loss which will attend an Operation in Specie or Bullion, as compared with a Remittance in a Bill of Exchange, or with a Draft against a Remittance in Specie or Bullion.*

RULE.—First find the course of exchange which would be established between the two places, as in Case II.; then say, as the course of exchange for bills is to the difference between that and the course resulting from the remittance in specie or bullion, so is 100 to the rate per cent of profit or loss.

EXAMPLE.—A merchant in London receives from Bahia 3000 Spanish dollars, at 920 reas each, subject to a charge of 5 per cent for export duty, commission, &c., and is drawn upon for the amount at the exchange of 48 pence per milrea; these dollars are sold at 4*s.* 10*d.* per oz. chargeable with 4 per cent for freight, commission, and petty expenses: required the course of exchange thereby established, and the rate per cent of profit or loss?

STATING OF THE EQUATION.

Reas	920	=	1 dollar.
Dollars, with charges..	105	=	*100 dollars without cha^{s}
Dollars	1000*	=	*866 ounces.
Ounce	1*	=	58 pence.
Pence, with charges....	104	=	*100 pence without cha^{s}
How many pence?		=	*1000 reas.

Ditto, with the Fixed Number.

105	*8660000
920	58
104	

Worked thus:—

$$\frac{8660000 \times 58}{105 \times 920 \times 104} = \overset{d.}{50} \text{ nearly.}$$

By Logarithms.

Nat. No.	Log.	Nat. No.	Log.
105 =	2·02119	*8660000 =	6·93752
920 =	2·96379	58 =	1·76343
104 =	2·01703		8·70095
	7·00201		7·00201
			1·69894 = d. 50 nearly.

Then,

As 48 : 2 :: 100 : $4\frac{1}{6}$

Ans. 50 pence course established, $4\frac{1}{6}$ per cent profit.

Or, find the difference per cent according to the Rules page 224—thus:

The logarithm of 50 =	1·69897
Ditto ..... of 48 =	1·68124
	·01773 difference,
To which add	2·00000
	2·01773 = $4\frac{1}{6}$ nearly.